Comments for Draft Revisions *(Not Applicable to Directives; Refer to Directive Management Officer for Directive Comment Format)*

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Comments Submitted By:	Seattle ACO
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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
1	AC 20-185		General	General	Human Factors 25.1302 is a necessary consideration for SVGS. It could be mentioned with Intended Function, and or para 5.2.3 Overal System Design Criteria	Add 25.1302 guidance	Editorial	Comment Accepted. Reference added.
2	AC 20-185	1-1	1.1.4, 1.3.2	"of SVGS of SVGS". " SVGSSVGS"	There are typographical errors	Clean up document typos	Editorial	Comment Accepted
3	AC 20-185		1.1.4	second sentence	repeated words "of SVGS"	correct typo and remove the extra words	format	Comment Accepted
4	AC 20-185		1.2	first sentence. Last word.	acronym looks mis-typed.	correct SVGSSVGS to SCGS	format	Comment Accepted
5	AC 20-185		1.3.2	first sentence	acronym looks mis-typed.	correct SVGSSVGS to SCGS	format	Comment Accepted
6	AC 20-185		2.2.2.2	first sentence	extra words in this sentence	correct wording to read, "…from the instrument segment to visual segment…"	format	Comment Accepted
7	AC 20-185		4.2.1.16	second sentence	there is a phantom 'D' at the end of the sentennce	remove the 'D'	format	Comment Accepted
8	AC 20-185		4.2.6.2	first sentence	acronym looks mis-typed.	change VGSSVGS to SVGS	format	Comment Accepted
9	AC 20-185		4.2.7.2	first paragraph	paragraph after header "jitter" is not numbered like all other paragraphs in the document.	re-nmber paragraphs	format	Comment Accepted
10	AC 20-185		4.3.2.5	entire paragraph	paragraph has run-on and iis confusing.	re-word	format	Comment Accepted
11	AC 20-185		4.3.3.1	first sentence	the word "defines" should be "defined"	change word	format	Comment Accepted
12	AC 20-185		6.2.2.5	N/A	recommend adding a bullet to test in all "rare normal" conditions as defined in AC 120-29A	adopt AC 120-29A rare normal criteria	conceptual	Comment Accepted

Comments Submitted By:	LAACO
Organization:	ANM-100L
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2 (160LH. Tong)	AC 20-185	3-4	3.3.2	Paragraph 3.3.2 states "In this AC, the SVGS is expected to be used with the ILS approach guidance systems." Paragraph 6.2.4 states: "Instrument Approaches. During any instrument approach for which approval is sought, evaluate the HDD/SVGS compatibility and performance against the lateral and vertical tracking and speed control criteria specified in paragraph 6.2.1.3 of this AC."	(HT) It appears the AC assumes that ILS "is expected to be used with" but does not have to be. I think the 150 feet AGL minimum is reasonable when the SVGS is used with ILS but if the applicant proposes something else (say with just SBAS GPS) this guidance is not adequate for us to certify without an issue paper stating the navigational accuracies, integrity and others. My concern is that some FAA team will certify it down to 150ft AGL without ILS.	Should make having an ILS system a requirement for the SVGS to be approved down to 150 feet or provide additional guidance.	Conceptual	Comment Accepted
3 (160LH. Tong)	AC 20-185	4-1	4.2.1	4.2.1.1 The SVGS primary display should include a geospatially correct depiction of the external topography from the perspective of the flight deck (egocentric) as derived from the aircraft attitude, altitude, relative position, and a coordinate-referenced database. 4.2.1.2 If not inherent in the terrain depiction, the scene should include flow elements such as texturing or grid lines, that give a sense of motion while on the final approach segment.	(HT) Paragraph 4.2.1 and many others repeatedly use the term "should" in what I perceive as requirements. In general, without specific guidance, these will be considered "nice to have" features by some and requirements by others. This confusion will create problems for us in the field trying to certify these devices. In my experience, even when the AC and TSO guidances are meant for "nice to have", other foreign authorities such as EASA have treated them as hard requirements.	1. Since paragraph 1.1.4 already states "This AC is not mandatory and does not constitute a regulation. This AC describes an acceptable means, but not the only means, to install and obtain airworthiness approval for equipment installation of SVGS of SVGS. However, if you use the means described in this AC, you must follow it in all aspects." Unless you specifically means the "should" terms to be "nice to have", suggest remove the word "should" in all paragraghs. 2. If use of "should" is appropriate in the above context, you need to put in a paragraph clearly explaining what "should" means, to avoid confusions in the field.	Conceptual	Comment noted. Paragraph deleted in editing proccess.
4 (130LN. Phan-Tran)	AC 20-185	Cover		Specifically, it provides one acceptable means for complying with Title 14 of the Code of Federal Regulations (14 CFR) part 23, 25, 27, or 29 airworthiness regulations when installing a SVGS in an airplane or rotorcraft	the AC intends to provide an acceptable means for airworthiness approval to Parts 23/25/27/29 but certain requirements refer to other ACs applicable to Parts 23 or 25 (see chapter 4)	Suggest to reference equivalent guidance applicable to other airworthiness parts or clarify how the referenced ACs required to be used on other airworthiness parts.	Conceptual	Comment accepted. Relevant references are added.

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5 (130L N. Phan-Tran)	AC 20-185	3-5	3.4	Synthetic Vision Guidance System - General Design Goals. The SVGS is designed to:	same information described in paragraph 2.2 Intended Function	Suggest to change paragraph 3.4: " The SVGS should be designed to meet the intended function(as described in paragraph 2.2	Editorial	Comment noted. 3.4 was deleted in editing.

Comments Submitted By:	Dale Dunford
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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
	AC 20-185	2-2	2.2.4	Ensure the pilot can rapidly recognize flight path deviations in conditions of turbulence and gusts, and effectively correct the flight path.	I think we want the pilot to be able to recognize flight path deviations in all foreseeable conditions in which the approach could be flown - including turbulence and gusts. I think we need be more complete and inclusive. The objective is not approaches in turbulence and gusts.	Revise to say: "Ensure the pilot can rapidly recognize flight path deviations and effectively correct the flight path in **all foreseeable conditions in which the approach could be flown, including changing crosswinds**, turbulence and gusts."	Conceptual	Accepted
	AC 20-185	3-1	3.1.1	SVGS is a combination of flight guidance display technology and high precision position assurance monitors.	SVGS is a combination of these things and an **SVS display,** too.	Revise to say: "SVGS is a combination of SVS and flight guidance displayed on the primary flight display, and high precision position assurance monitors."		Accepted
	AC 20-185	3-1	3.1.1	The SVGS display is implemented on a **head-down Primary Flight Display(PFD)**, designed to the guidance provided by AC25-11B.	Why is head-down PFD specifically called out? Couldn't SVGS be displayed head up?	Revise to say: "The SVGS display is implemented on a head-down **and/or head-up** Primary Flight Display(PFD), designed to the guidance provided by AC25-11B."		Rejected. Only addresess HDD because HUD displays can get SA Cat I with no SVGS elements added in and AFS is not only relaxing the HUD requirement.

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	AC 20-185	3-1	3.1.1	same as above	I know we have referred to AC 25-11B many times in the MASPS and our 20-series AC's, but how does this apply to part 23, 27, 29 certifications? Practically speaking, SVGS is a product for transport category airplanes - not helicopters, because we haven't had any rotorcraft experts involved. Part 23 has a different safety context, crew complement and all that. So, practically speaking this AC should be a 25-series AC.	none	soap box	Comment Noted.
	AC 20-185	3-1	3.1.2	The additional airborne monitoring ensures the same level of accuracy, availability and integrity **as the equivalent ground based systems** normally used for these operations.	It is not clear what the equivalent ground based systems are. I suppose we really mean that SVGS bridges the gap between Type II ILS and Type I ILS. We should be clear about that.	Revise to say: "The additional airborne monitoring ensures the same level of accuracy, availability and integrity as the equivalent ground based systems (e.g., Type II ILS) ~~normally used for~~ typically used for approaches to less than Category I minimums (e.g., less than 200 ft. HAT)."		Accepted
	AC 20-185	3-2	3.1.5	**Deviations from trajectory** are depicted using conventional path deviation displays and command guidance is provided by either an FPV based, or attitude based command guidance system (flight director).	Deviations are from the desired/specified flight path, not the trajectory. The trajectory is the path that the airplane is actually taking.	Revise to say: "Deviations from ~~trajectory~~ **the desired approach path (lateral and vertical)** are depicted using conventional path deviation displays and command guidance is provided by either an FPV based, or attitude based command guidance system (flight director).	Conceptual	Accepted

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	AC 20-185	3-5	3.4.1	Provide position assurance and approach guidance integrity monitoring with critical time to transition to a published missed approach point of 150 feet AGL.	The intended operation, which we commonly call SA Cat I, amounts to flying a category I approach but to lower minimums (150ft DH instead of 200ft DA, and 1400 RVR instead of 1800-2400 RVR). The safety notion for SA Cat I is that the airborne system (and possibly the crew qualifications) provide certain compensating features that bridge the gap between Type I and Type II approach aids and runway infrastructure to enable an equivalently safe operation. **So,** the design goal of SVGS is to provide, in addition to the underlying Category I approach aid, the accuracy, availability and integrity required of a Category II approach system.	I suggest being more explicit, less general about the design goals, because it helps the reader understand the objectives and expectations better.	Conceptual	Comment noted. 3.4.1 was deleted in editing.
	AC 20-185	3-5	3.4.3	When flying the aircraft using manual flight controls, enable the pilot to maintain a **stabilized approach** within the required flight technical error with **minimum pilot workload**.	**First**, "stabilized" approach means different things to different people. What do we mean by stabilized and what aspects of it would SVGS contribute to or enable? **Second,** we don't certify that a system provides or requires "minimum workload". The workload, taken in the context of all the pilot's tasks and performance requirements, must be <u>acceptable.</u>	Revise to say: "When flying the aircraft using manual flight controls, enable the pilot to maintain a stabilized approach **(e.g., controlling to desired approach speed,** within the required flight technical error **tolerances)** with ~~minimum~~ **acceptable** pilot workload."		Accepted
	AC 20-185	4-1	4.2.1.5		The pilot's awareness of the terrain situation involves more than lateral distance to certain features. It needs to include direction (bearing) and at least a qualitative sense relative height also.	Add "height and bearing" after "relative distance"		Accepted

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	AC 20-185	4-2	4.2.1.6	Position accuracy, symbology, and topographical information must be consistent with each other.	Sounds good, but how would position accuracy be "consistent" with symbology? I'm not sure what the point is. Certainly the positioning of the symbology and the topography in the display should be accurate. Otherwise it would be misleading. But the navigation solution might be more or less accurate/precise that the terrain data used to render the picture - so what does consistent mean? What would you compare? I don't think I disagree with the requirement, but it is not clearly stated, certainly not well enough to determine compliance.	Clarify the requirement.	Conceptual	Para 4.2.1.6 was deleted during revision.
	AC 20-185	4-2	4.2.1.14	The SVGS **F** Field of **R** Regard (FOR) should	unwanted letters	remove the F and R	typo	Accepted
	AC 20-185	4-2	4.2.1.16	Dominant topographical features present in the SVGS depiction should be identifiable in the outside view. The reverse is also a requirement. **D.** Dominant topographical features present in the outside view should be identifiable in the Synthetic Vision System depiction.	Looks like an extra, unwanted "D"	remove the extra D	typo	Accepted
	AC 20-185	4-3	4.2.2.1	The VGSSVGS displays	should be SVGS	change VGSSVGS to SVGS	typo	Accepted
	AC 20-185	4-3	4.2.3.2	The terrain in the area surrounding the runway **should** not be depicted floating above or below the runway. A method for integrating the runway and terrain data **must** be incorporated into the system.	Not sure if the words "should" and "must" were deliberately chosen here. Perhaps the AC should include a paragraph that defines the use of "should", "must", "shall", etc. for the sake of the AC. In this paragraph, the first item seems more like the real requirement, while the seconds seems like a good way to achieve it. So I would possibly reverse the use of should and must in this paragraph.	Define the terms for the AC, and reconsider the choice of must and should in this paragraph.	Conceptual	Comment accepted. Use of terminology addressed in revsion.

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	AC 20-185	4-3	4.2.3.3	When the threshold is permanently displaced from the beginning of the paved area, the full pavement should be depicted in the SVGS image, and the **displacement** must be clearly indicated.	Suggest replacing "displacement" with "displaced threshold" I know it means the same, but I think it is clearer.	When the threshold is permanently displaced from the beginning of the paved area, the full pavement should be depicted in the SVGS image, and the ~~displacement~~ **displaced threshold** must be clearly indicated.	editorial	Accepted
	AC 20-185	4-3	4.2.3.3	A **geographically accurate perspective** depiction of the runway of intended landing, integrated with the SVGS scene, and derived from an accepted database.	4.2.3.7 and 4.3.2.9 and perhaps other paragraphs address the need for cues to be scaled and aligned with the attitude symbology. I would make two points: 1) Everything that is to be earth-referenced: topography and symbology like FPV, FPARC should be scaled vertically and laterally in a 1:1 ratio. In other words, not distorted - 1 degree vertical = 1 degree lateral. 2) 4.2.3.3 should say that the topography is scaled and aligned (conformal) with the attitude and lateral earth-referenced items. Not sure which paragraphs to say all this, but I don't think its clearly there.		Conceptual	4.2.3.3 deleted during revison.
	AC 20-185	4-3	4.2.3.4	Image features which provide a sense of groundspeed, altitude trend and direction due to aircraft movement through the depicted scene, if not inherently provided by the terrain depiction.	I think this refers to what we have been calling "optical flow" in the RTCA committee. First of all, I think the "sense" is qualitative, not quantitative. Second, I think "change of direction" (i.e., turns, yaw) rather than just direction and "rate" of change are key items that optical flow provides a sense of.	Revise to read: "Topographical features in the SVGS depiction can provide valuable motion cues of motion over the earth, proximity and closure to terrain or runway, yaw and yaw rate. Whenever the topography is relatively featureless (e.g., flat desert, overwater, etc.) additional synthetic cues such as grid lines or texture should be added to achieve the same benefits."	Conceptual	Accepted

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	AC 20-185	4-4	4.2.3.10	Annunciations for errors in SVGS depiction, navigation signal integrity, and excessive deviation (flight technical error) should be displayed in the pilot's primary field of view.	I know that annunciations are not the same as alerts which require immediate flight crew awareness, but I would at least add to this paragraph the need for them to be conspicuous. When the pilot is responsibly scanning the displays, these items should be easy to see and recognize.	Revise to say: Annunciations for errors in SVGS depiction, navigation signal integrity, and excessive deviation (flight technical error) should be **conspicuously** displayed in the pilot's primary field of view.	Conceptual	Accepted
	AC 20-185	4-4	4.2.4	The design of the command guidance cue (flight director) as described in AC120-29A, Criteria for Category I and Category II Weather Minima for Approach, appendix 3 must be able to support the required flight technical error performance and accurately display the correct flight path trajectory to the desired touchdown point.	For transport airplanes, at least, the command guidance should also comply with the design criteria of AC 25.1329-1c *Approval of Flight Guidance Systems.*	The design of the command guidance cue (flight director) as described in **AC 25.1329-1c *Approval of Flight Guidance Systems* , and** AC120-29A, *Criteria for Category I and Category II Weather Minima for Approach,* Appendix 3 must be able to support the required flight technical error performance and accurately display the correct flight path trajectory to the desired touchdown point.	editorial	Accepted

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	AC 20-185	4-5	4.2.5.2	SVGS FOR should be selected to support visual search for the runway. Crosswind should be considered for its effect on head-down to head-up transition to landing. For the SVGS approach, the FOR should not be less than 12 degrees horizontal and 15 degrees vertical. The vertical FOR reference typically is the aircraft pitch reference. The horizontal FOR reference may be based on flight path, track, heading, or a combination of these elements.	This paragraph is consistent with an earlier one describing SVGS as a head down display. I think we should not specify SVGS as head down only. The FOR guidelines of this paragraph apply to head down, but I'm not sure they apply equally well with a HUD or with a head mounted display. Furthermore, for a head down display, I can hardly imagine that an SVGS with only 12 degrees of lateral FOR or 15 degrees vertical FOR is effective or satisfactory. I suspect it should be no loess than twice that size. Perhaps the symbol +/- was left out. For a Head Up SVGS I would apply the same guidelines as for EFVS.	SVGS FOR should be selected to support visual search for the runway. Crosswind should be considered for its effect on head-down to head-up transition to landing. For the SVGS approach **with a head down display,** the FOR should not be less than **+/-** 12 degrees horizontal and degrees vertical. The vertical FOR reference typically is the aircraft pitch reference. The horizontal FOR reference may be based on flight path, track, heading, or a combination of these elements. A head up SVGS FOR should be no less than 20 degrees horizontal and 15 degrees vertical. In applications where the FOR is centered on the flight path vector the minimum vertical FOR should be 5 degrees (± 2.5 degrees) and 20 degrees horizontal.	Conceptual	Partially accepted. Trying to avoid any reference to HUD implementation.
	AC 20-185	4-5	4.2.7.1.1	A longer lag time may be found satisfactory, provided it is demonstrated not to be misleading or confusing to the pilot.	Latency. Lag time can impact pilot performance without being blatantly misleading or confusing. If the latency is in a cue that is directly used as a control cue for manual inputs and feedback to the pilot, very subtle latency values can lead to a reduction in the stability of the control behavior with oscillatory results. So flight path tracking tasks under a variety of flight conditions should be conducted to demonstrated to show that such effects are not present.	Revise to say: "A longer lag time may be found satisfactory, provided it is demonstrated not to be misleading or confusing to the pilot, nor result in oscillatory manual path tracking."		Accepted

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	4-7	4.3.2.1	The flight crew must be advised of failed aircraft systems or components affecting the decision to continue in SVGS mode.	I think the intent of this paragraph is to have annunciations of system and component failures than affect the decision to continue. I think using the word "annunciation" would be clearer that "advise"	Revise to say: "The **system should conspicuously annunciate, in the primary field of view, failures of aircraft systems or components affecting the decision to continue in SVGS mode**."		Accepted
	AC 20-185	4-7	4.3.2.5	For installations containing more than one approach navigation source selected for the approach should be positively indicated in the primary field of view as defined in AC 25-11B and AC 25.1322-1 Consideration should be given to the overall aircraft-level annunciation philosophy.	This sentence is awkwardly worded.	For SVGS installations that have multiple approach navigation sources to choose from, the one approach navigation source selected for the approach should be positively indicated in the primary field of view as defined in AC 25-11B and AC 25.1322-1. Where possible, the design of this approach navigation source indication should be consistent with overall aircraft-level annunciation design/ methodology."	editorial	Accepted
	AC 20-185	4-8	4.3.3.1	The SVGS should have an automatic means to detect and alert the pilot to hazardously misleading guidance signals. Monitor annunciations should be in the primary field of view as defines in AC 25-11B,paragraph 5.11 and AC 25.1322-1.	We should not confuse the terms alert and annunciation.	Revise to say: "The SVGS should automatically detect and alert the pilot to hazardously misleading guidance signals. The visual alerts should be in the primary field of view as defined in AC 25-11B,paragraph 5.11 and AC 25.1322-1."	conceptual	Accepted
	AC 20-185	4-8	4.3.4.3	The alerts should be displayed in the pilot’s primary field of view per AC 25-1322.	the correct reference is AC 25.1322-1	correct the reference to AC 25.1322-1	editorial	Accepted

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	AC 20-185	5-1	5.2.1	The SVGS should be shown to safely perform its intended function for each operation and phase of flight for which it will be used. For SVGS to meet the operational objective of a 150 feet AGL missed approach point, the SVGS safety standards specified below are based on an approach system having performance not less than ILS Level 1, or the performance of GNSS First time usage – Spell out required for operations to a 200feet AGL minima, augmented as required to permit extension of the approach path to 150 feet AGL HAT.		There is a lot of mixing of altitude and height nomenclature that should be made correct and consistent. The typical DH values of 200ft and 150 ft., etc., are HAT not AGL. I recommend that we ask AFS to scrub the use of these terms throughout the AC and provide corrections as needed.	editorial	Accepted
	AC 20-185	5-1	5.2.2.2	The ability of the SVGS to safely perform its intended function, including the potential to display hazardously misleading information, shall be assessed according to 14 CFR §§ 23.1309 and 25.1309, AC 25-11B (Chap. 4), AC 25-19, Certification Maintenance Requirements, AC 25-1309-1A, System Design and Analysis, AC 23.1311-1C, Installation of Electronic Display in Part 23 Airplanes and AC 23.1309-1C, System Safety Analysis and Assessment for Part 23 Airplanes, as appropriate.	This basically boils down to "you have to comply with 2x.1309." I think to focus on only one manifestation of non-normal behavior - display hazardously misleading information is misleading itself. HMI is certainly a key thing to look at but not the only 1309 related thing. AC 25-11B, Chapter 4 does a decent job of describing the process as it applies to display systems that it fully applicable to SVGS.	Revise to say: "The SVGS installation must comply with the system safety requirements of 23.1309 or 25.1309, as applicable. For means of compliance and assessment of hazard effects, AC 25-11B (Chap. 4), AC 25-19, Certification Maintenance Requirements, AC 25-1309-1A, *System Design and Analysis* , AC 23.1311-1C, *Installation of Electronic Display in Part 23 Airplanes* and AC 23.1309-1E, *System Safety Analysis and Assessment for Part 23 Airplanes* , as appropriate. "	editorial	Accepted

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	AC 20-185	6-3	6.2.1.3.1	The following standards should be used in evaluating the performance of the SVGS operation: ….• A smooth transition through flare to landing. • Approach, flare, and landing at a normal sink rate. • All touchdowns in the touchdown zone. • A safe go around anytime including up to touchdown in all configurations to be certified.	I certainly agree that this describes the landings we want to see, but I wonder about the involvement of SVGS in accomplishing these points. All of them are performed in the visual segment when the pilot's head is up, away from the SVGS display and past any point where an SVGS alert would occur. SVGS is an instrument system, used during the instrument segment. The success of the operation in the visual segment, except for the brief transition from SVGS to OTW, is independent of the quality and capabilities of SVGS. We don't include this point in Category I or Category II instrument and flight guidance certifications - why for SVGS unless we are talking about SVGS on HUD?	Discussion of the question	Conceptual	Comment rejected. This was the industry consensus for performance verification.
	AC 20-185	6-5	6.2.5.2	Confirm that the SVGS satisfactorily performs all intended functions for which approval is being sought during the flare, landing and rollout. Throughout the flare, landing and roll-out maneuvers evaluate the SVGS against the attributes listed in the pilot evaluation matrix (paragraph 6.2.11).	Related to the comment above. What functions does the SVGS perform that affects the operation during flare, landing and rollout?	Discussion of the question	Conceptual	Comment rejected. This was the industry consensus for performance verification.

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	AC 20-185	3-2	Figure 1	The illustration should have a disclaimer about the symbology requirement are not being specified by this AC	It appears the intent of the picture is to show a general representation of data to be included on the display and not necessarily how to present the data. If the intent is to establish a hard requirement for the symbology then it should be clear to the reader. If not then a disclaimer should be added so that it is not misconstrued.	Add a statement that the picture is not establishing the requirements for the symbology but to show the type of data that should be presented to the pilot.	Editorial	Comment Accepted.
	AC 20-185	5-4	5.2.9	SVGS operation should be made available to the flight data recorder as required by the certifying authority	Is it a requirement for the data to be recorded? Please clarify where the requirement comes from.	Possibly remove the last part of the sentence - as required by the certifying authority.	Editorial	Comment Noted. Data Recoding requireed by Part 121 Appendix M.

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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
	AC 20-185		1.4.6	Purchase information is in appendix B.	Implies that purchase information for RTCA/DO-359 is in Appendix B. It is not.	Add purchase information for RTCA/DO-359 to Appendix B.	Editorial	Comment Accepted.

Comments Submitted By:	Steven Roell
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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
	AC 20-185	Global	0 general	Global	This document does not utilize the plain language philosophy. See paragraph 4.1.1 as an example.	Revise using plain language techniques.	Conceptual	Comment Noted.
	AC 20-185	1-1	1.2	SVGSSVGS	Typo	Delete one "SVGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	1-1	1.3.2	SVGSSVGS	Typo	Delete one "SVGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	2-1	2.2.1	150 feet AGL above ground level (AGL)	Typo	Delete 1st "AGL".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	2-1	2.2.2.2	the visual transition from the instrument segment to	Typo	Delete.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	3-3	3.2.2	(1)	Typo	Delete.	Editorial	Comment Accepted. Text Modified.

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	AC 20-185	4-1	4.2.1.4	The scene should be depicted egocentrically from the pilot's perspective.	Isn't this essentially the same as 4.2.1.1?	Delete.	Conceptual	Comment Accepted.
	AC 20-185	4-2	4.2.1.14	SVGS F Field of R Regard (FOR)	Typo	Delete "F" and "R".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-2	4.2.1.16	The reverse is also a requirement. D.	Typo	Delete "D.".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-3	4.2.2.1	VGSSVGS	Typo	Delete first "VGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-3	4.2.3.1	The following features and characteristics….	This paragraph should not be a subparagraph to 4.2.3. In fact, the following items are subparagraphs to this one.	This should be a paragraph under 4.2.3 similar to that under 4.2.1.	Format	Comment Accepted. Text Modified.
	AC 20-185	4-5	4.2.6.2	VGSSVGS	Typo	Delete first "VGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-5	4.2.6.2	The VGSSVGS minification factor for a head down should not be greater than 3:1.	Missing the word "display".	Insert "display" between "down" and "should.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.2.4	25-1322	Typo	Replace with "25.1322-1".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.2.5	For installations containing more than one approach navigation source…	Typo	Insert a comma after "approach".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.3.1	defines	Typo	Replace with "defined".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.3.3	SVGGS	Typo	Delete one "G".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.4.3	25-1322	Typo	Replace with "25.1322-1".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-11	4.5.2.3	no worse than 10^{-5}	Typo	Superscript the "-".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	4-12	4.5.3.2	2nd line--AGL 4th line--AGL above ground level 5th line--AGL	AGL implies the obstacle in its entirety is above ground level.	Replace with "in height".	Conceptual	Comment Accepted. Height Refernececs clarified.
	AC 20-185	4-12	4.5.3.2	$1x1010^{-5}$	Typo	Delete one "10".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	5-4	5.2.8	SVGSSVGS	Typo	Delete one "SVGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	6-2	6.2.1.2	7th bullet--on either the HDD	Typo	Delete "either" or rewrite "on either the HDD or HUD".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	6-3	6.2.2.1	If the SVGS is to be available for all phases of flight	What if it is not to be available for all phases of flight?	Explain what must be done if the SVGS is not to be available for all phases of flight.	Conceptual	Comment Accepted.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	6-4	6.2.2.3	SVS	Typo	Replace with "SVGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	6-4	6.2.2.5	Representative day and night IMC conditions	The SVGS should be usable in VMC conditions also.	Include day & night VMC conditions.	Conceptual	Comment Accepted.
	AC 20-185	A-1	Note at top of page	SVGS approved	Typo	Insert "is" between "SVGS" and "approved".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	A-1	Note at top of page	The ACO will assist the applicant in developing an appropriate Rotorcraft Flight Manual Supplement (RFMS).	1. This sentence applies to rotorcraft only. 2. Other entities can also assist.	1. Begin the sentence with "For rotorcraft,". 2. Replace "ACO" with "certifying authority".	Conceptual	Comment Accepted.
	AC 20-185	A-1	Last paragraph	dated <insert date>	The AFM date could change, but this supplement would still be applicable.	Delete "dated <insert date>".	Conceptual	Comment Accepted.
	AC 20-185	B-1 thru B-6	B.1	Multiple definitions.	Many of the items listed are not mentioned elsewhere in the document.	Delete those items not mentioned elsewhere in the document.	Conceptual	Comment Accepted. Text Modified.
	AC 20-185	B-1	B.1.2	(RAIL)	Already stated before definition.	Delete.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	B-1	B.1.2	(SF)	Already stated before definition.	Delete.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	B-2	B.1.10	EFVS	Not defined or used within this document.	Replace with "SVGS".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	B-2	B.1.11	operation’	Typo	Delete apostrophe.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	B-4	B.1.23	Minimum descent altitude (14 CFR §1.1).	Does not include acronym.	Insert "(MDA)".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	B-5	B.1.33	An electronic means to display a synthetic vision image of the external scene topography to the flight crew.	This is not the current definition for "Synthetic Vision" from 14 CFR §1.1. In fact, this IS the definition for "Synthetic Vision System" from 14 CFR §1.1.	Use the correct definition from 14 CFR §1.1.	Conceptual	Comment Accepted. Text Modified.
	AC 20-185	B-5	B.1.34	An electronic means to display a computer-generated image of the applicable external topography from the perspective of the flight deck that is derived from aircraft attitude, altitude, position, and a coordinate-referenced database.	I could not find this definition in AC 25.1329-1B, nor in AC 25.1329-1C, which is the current version.	Use the current definition from 14 CFR §1.1.	Conceptual	Comment Accepted. Text Modified.

Comments Submitted By:	Jeff Borton
Organization:	ACE-117W
Phone:	316-946-4166

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	3-1	3.1	The SVGS display is implemented on a head-down Primary Flight Display(PFD), designed to the guidance provided by AC 25-11B.	This AC should specify if it addresses not only Heads Down Display (HDD) as well as Heads Up Displays (HUD). This is not clear from later statements in the AC (such as 6.2.2.2 which imply application to HUD as well).	Clarify AC guidance for SVGS on HDD or HUD.	Conceptual	Comment Accepted. Text Modified.
	AC 20-185	4-1	4.2.1	SVGS Scene Depiction	Is there a need to also discuss traffic depictions, not just terrain?	Clarify need for traffic depictions.	Conceptual	Comment Noted. Traffic depictions is not a minimum requirement.
	AC 20-185	4-2	4.2.1.9 and 4.2.1.15	(4.2.1.9) A displayed terrain or displayed obstacle conflict should be obvious to the crew. (4.2.1.15) The pilot's ability to see and use the required primary flight display information such as primary attitude, airspeed, altitude, command bars, etc., should not be degraded.	Would also add that over-use of amber or red for terrain indications in an SVS can contribute to crew confusion and actually detract from awareness. For example, if large portions of the display become amber or red due to triggering terrain alerting thresholds, it may be difficult for the pilot to discern aircraft attitude, flight path, or other critical parameters.	Add some considerations for appropriate use of color.	Conceptual	Comment Accepted. References Addded.
	AC 20-185	6-2 and 6-3	6.2.1.3.1	Paragraph describes SVGS performance criteria as maximum vertical (+/- 1 dot) and lateral (+/- .33 dot) deviations from 300 ft AGL to MAP. Airspeed tolerance is stated as +10/-5 kts from 300 ft AGL thru retard in flare.	It should be noted that this criteria conflicts with current pilot proficiency standards for basic instrument rating (max vertical deviations on final approach is +/- .75 dot) and airline transport rating (max lateral/vertical deviations on final approach is .25 dot). Airline transport pilot proficiency standards for airspeed control is maximum of +/- 5 kts on final approach.	Align SVGS performance criteria to agree with existing pilot proficiency criteria. The system should allow the pilot to conduct approach operations to at least the same criterial as existing proficiency standards.	Conceptual	This was the industry consensus. Conisistent with cat II requirements.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	6-5	6.2.3.4	The number of fault-free approaches (see note below) to be accomplished in as many of the conditions listed below as practicable and as applicable must be agreed with the certifying authority. A minimum of 50 fault-free approaches, of which at least 5 should be to confirm satisfactory go-around performance, must be conducted.	What is the rationale for the 50 approaches and 5 go arounds as minimum?	The rationale for the minimum number of approaches and go arounds should be explained. Consideration should also be given to offering these numbers as suggested minimums, not "mandatory."	Conceptual	Comment Noted. It was the industry consensus. It was consistent with EFVS testing. ACO and applicant are free to determine appropriate testing requirements for the specific application.
	AC 20-185	A-3	N/A	Sample limitations do not discuss any aspects of need for operational approval of aircrew as well as hardware/software.	Sample limitations should also include any statement/s regarding operational approval. For example, in many limitations for expanded system capability such as CAT II ILS, Required Navigation Performance, etc, the installed hardware/software may meet the certification requirments, but a statement is typically added to the AFM that this "does not constitute operational approval for use."	Include additional guidance as needed in this sample Limitation section.	Conceptual	Comment Accepted. Text Modified.
	AC 20-185	A-3	N/A	Sample Emergency Procedures state "no change" as the suggested content.	Consideration should be given to aspects of the SVGS installation that may be affected by various power anomalies (such as loss of normal electrical power, etc). This may in fact constitude a change to a given Emergency Procedure.	Remove the "no change" from sample Emergency Procedures and replace with some words to consider effects such as loss of normal electrical power on SVGS.	Conceptual	Comment Accepted. Text Modified.

Comments Submitted By:	Kevin D Campbell
Organization:	ACE-117W
Phone:	316-946-4163

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	1-1	1.1.1, 5th line			This paragraph implies this AC is written for SVGS on "ILS" approaches only. However, there are several other references throughout this AC that imply SVGS is applicable to other types of approaches. For example: 1.) para 3.3.1- 1st sentence sounds like SVGS approaches are any type of "instrument approach" and not confined to "ILS". 2.) para 4.5.2.2- Specifically references "ILS or GPS based SVGS operations". 3.) para 6.1.3- Addresses performance evaluations for "all approach types". 4.) para 6.1.4- Addresses lateral and vertical limits for the "type of approach" and doesn't specify "ILS". 5.) page A-3, Section 1-general, last line- References "MDA" which is not applicable to "ILS". In summary, expand paragraph 1.1.1 to allow SVGS operations for all type of approaches.		Comment Noted. Text modified to clarify.
	AC 20-185	1-1	1.1.4, 3rd line			Delete redundant "of SVGS" after "installation".		Comment Accepted. Text Modified.
	AC 20-185	1-1	1.2, 3rd line			Add commas after "25.773" and "27.773".		Comment Accepted. Text Modified.
	AC 20-185	1-2	1.4.4			Global comment: Change "appendix" to "Appendix" throughout this AC.		Comment Accepted. Text Modified.
	AC 20-185	1-2	1.4.5			1.) Change "appendix" to "Appendix".		Comment Accepted. Text Modified.
	AC 20-185	2-1	2.1.4, Note			This Note is vague and offers no useful information.		Comment Accepted. Text Modified.
	AC 20-185	2-1	2.2, 1st line			Change "your" to "the" to align with nomenclature in the 2nd		Comment Accepted. Text Modified.
	AC 20-185	3-3	3.1.7, 4th line			What is "ATCAT"? This is not defined in Appendix B.		Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	3-3	3.1.7, 5th line			What does "regardless of the underlying source of navigation" mean in this context? It implies that non-ILS sources are to be considered.		Comment Accepted. Text Modified.
	AC 20-185	3-4	3.3.3.1, 2nd line			What is "ATCAT"? This is not defined in Appendix B.		Comment Accepted. Text Modified.
	AC 20-185	3-5	3.4.2.3, 1st line			Add comma after "AGL".		Comment Accepted. Text Modified.
	AC 20-185	4-3	4.2.3.3, 1st sentence			This sentence seems incomplete when compared to the complete sentence context used in paras 4.2.3.1 and 4.2.3.2.		Comment Accepted. Text Modified.
	AC 20-185	4-3	4.2.3.7, 3rd line			Change "appendix" to "Appendix". This is a global comment for this AC. See examples on page 4-8, para 4.3.2.4, 2nd line; page 4-11, para 4.5.1.2, 5th line.		Comment Accepted. Text Modified.
	AC 20-185	4-6	4.2.7.2, 7th line			Add comma after "point".		Comment Accepted. Text Modified.
	AC 20-185	4-7	4.2.7.5.2, 2nd line			Delete 1st hyphen after "TSO".		Comment Accepted. Text Modified.
	AC 20-185	4-7	4.2.7.5.2, 3rd and 4th lines			Add apostrophes around the TSO title. This is a global comment for all TSO titles in this AC. See examples in paras 5.2.5.1 and 5.2.5.5.		Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.3.3, 1st line			Add comma after "approach".		Comment Accepted. Text Modified.
	AC 20-185	4-8	4.3.3.3, 2nd line			Add comma after "malfunction".		Comment Accepted. Text Modified.
	AC 20-185	4-9	4.3.4.4.2			Renumber the sub paragraphs in this section as "4.3.4.4.2.1 thru 4.3.4.4.2.3.2.		Comment Accepted. Text Modified.
	AC 20-185	4-9	4.3.4.4.1.3.2, 4th line			Change "150 feet MAP, AGL point" to "150 feet AGL MAP, ".		Comment Accepted. Text Modified.
	AC 20-185	4-9	4.3.4.4.1.3.2			Last sentence is wordy and difficult to read.		Comment Accepted. Text Modified.
	AC 20-185	4-10	4.3.4.4.3			Renumber the sub paragraphs in this section as "4.3.4.4.3.1 and 4.3.4.4.3.2.		Comment Accepted. Text Modified.
	AC 20-185	4-10	4.3.4.4.1.2, 6th line			Add "AGL" after "300 feet".		Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	4-10	4.4.1, 3rd line			Change "an SVGS" to "a SVGS". See examples on page 4-9: para 4.3.4.4.1.3.1, 5th line; para 4.3.4.4.1.3.2, 4th line.		Comment Accepted. Text Modified.
	AC 20-185	4-10	4.4.2, 2nd line			1.) Add comma after "25-23". 2.) Should AC titles have apostrophes to match the format used for TSO titles? Global comment.		Comment Accepted. Text Modified.
	AC 20-185	4-10	4.5, 3rd line			Add commas after"200A" and "2.3.2".		Comment Accepted. Text Modified.
	AC 20-185	4-10	4.5, 4th line			Change "appendix" to "Appendix". See comment line #20 above.		Comment Accepted. Text Modified.
	AC 20-185	4-11	4.5.1.2, 1st line			Delete comma after "of".		Comment Accepted. Text Modified.
	AC 20-185	4-11	4.5.1.2, 5th line			Change "C151C" to "C151c".		Comment Accepted. Text Modified.
	AC 20-185	4-11	4.5.2.3, 1st line			1.) Add comma after "201A". 2.) Change "Sect." to "section". See examples on page 4-10, para 4.5, 3rd line; page 4-12, para 4.5.4.4, 4th and 6th lines.		Comment Accepted. Text Modified.
	AC 20-185	4-11	4.5.2.4, 3rd line			Add comma after "200A".		Comment Accepted. Text Modified.
	AC 20-185	4-12	4.5.4.4, 4th and 6th lines			Add commas after "200A" in both places.		Comment Accepted. Text Modified.
	AC 20-185	5-1	5.1.2, 2nd line			Delete "wheel" after parenthesis because it is redundant with "wheel" within parentheses.		Comment Accepted. Text Modified.
	AC 20-185	5-1	5.2, Title			Change "Deign" to "Design".		Comment Accepted. Text Modified.
	AC 20-185	5-1	5.2.1			1.) Last sentence reads poorly- too wordy. 2.) 5th line- What does "GNSS First time usage" mean and why is "First" capitalized? 3.) 5th line- What does "Spell out" mean in this context?		Comment Accepted. Text Modified.
	AC 20-185	5-1	5.2.2.2, 3rd line			Why is the title for "AC 25-11B" not included while the titles for the other four ACs listed in this paragraph are included?		Comment Accepted. Text Modified.
	AC 20-185	5-1	5.2.2.2, 8th line			Add comma after "above".		Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	5-2	5.2.3.1, 3rd line			Change "an SVGS" to "a SVGS". See examples on page 4-9: para 4.3.4.4.1.3.1, 5th line; para 4.3.4.4.1.3.2, 4th line.		Comment Accepted. Text Modified.
	AC 20-185	5-3	5.2.4.2, 2nd line			Change "and" to "that". Sentence doesn't read properly as written.		Comment Accepted. Text Modified.
	AC 20-185	5-4	5.2.6.1, 4th and 5th lines			Add apostrophes around the DO-160 title. See examples in paras 5.2.5.1 and 5.2.5.5.		Comment Accepted. Text Modified.
	AC 20-185	6-2	6.2.1.2, 3rd bullet			This bullet seems to be redundant to para 6.2.1.1, last sentence.		Comment Accepted. Text Modified.
	AC 20-185	6-3	6.2.2.1, 1st line			Add comma after "flight".		Comment Accepted. Text Modified.
	AC 20-185	6-3	6.2.2.1, 7th bullet			How/why are "non-SVGS VMC and IMC approaches and landing" evaluated in a paragraph written for "SVGS phases of flight"?		Comment Accepted. Text Modified.
	AC 20-185	6-4	6.2.2.2, 1st line			Add comma after "above".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.3.4, item 2, 1st line			Add comma after "point".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.3.4, item 3, 1st line			Add comma after "point".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.3.4, item 4, 1st line			Add comma after "symbology".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.4, 3rd line			Add comma after "approaches".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.4, 5th line			Add comma after "degrees" and change "than" to "then".		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.5.2, 2nd line			Change "rollout" to "roll-out" to match examples in paras 6.2.5; 6.2.5.1, 1st line; 6.2.5.2, 3rd line.		Comment Accepted. Text Modified.
	AC 20-185	6-5	6.2.5.2, 3rd line			Add comma after "maneuvers".		Comment Accepted. Text Modified.
	AC 20-185	6-6	6.2.6, 1st line			Add comma after "SVGS".		Comment Accepted. Text Modified.
	AC 20-185	A-1	Appendix A, 5th line			Why is "EVS/EFVS" included in this line but not addresses throughout this AC?		Comment Accepted. Text Modified.

	For detailed instructions on how to fill out the columns below, please see the Instructions sheet.							
	AC 20-185	A-2	AppendixA			Suggest clarifying the section titles listed are for example only and must match the section titles of the basic AFM for which the AFMS is included.		Comment Accepted. Text Modified.
	AC 20-185	A-3	Appendix A, SECTION 1, 1st and 3rd lines			Why is "SVS" included in the "AC 20-SVGS" title? "SVS" is not included on the page headers or within the text.		Comment Accepted. Text Modified.
	AC 20-185	B-1	Appendix B, B.1.4, 1st line			Why is "Enhanced Vision System" included within this definition when it is not addressed throughout the document?		Comment Accepted. Text Modified.
	AC 20-185	B-1	Appendix B, B.1.6			Delete hyphen after "Conformal". See examples in B.1.3 and B.1.4 titles.		Comment Accepted. Text Modified.
	AC 20-185	B-3	Appendix B, B.1.20			Why doesn't the definition of "HUD" include the "SVGS" references listed on pages 6-6 and 6-7, items E, F, G, etc.?		Comment Accepted. Text Modified.
	AC 20-185	B-5	Appendix B, B.1.32, 2nd line			Why is "Chapter" capitalized while lowercase "chapter" is used in paras 2.1.2, 2.1.3, 2.1.4, 4.2.2.1, 4.2.2.2, etc.?		Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	B-5	Appendix B, B.1.32, 3rd line			Why is the RVR value listed as "feet" while the RVR value on page B-2, para B.1.11 is listed as meters "m"?		Comment Accepted. Text Modified.
	AC 20-185	B-5	Appendix B, B.1.39, 1st line			Suggest clarifying "TDZE" is based on "MSL".		Comment Accepted. Text Modified.
	AC 20-185	B-6	Appendix B, B.2.1, 2nd line			Add comma after "information" and change "telephone" to "call".		Comment Accepted. Text Modified.
	AC 20-185	B-6	Appendix B, B.2.2, 2nd line			Change "adviory" to "advisory".		Comment Accepted. Text Modified.
Comments Submitted By:								
Organization:			ACE-111					
Phone:								

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
	AC 20-185	3-1		"designed to the guidance provided by AC 25-11B" There are numerous places in the document that say the part 25 documentation must be followed.	Is this a part 25 or part 23 document?	Specify it is a part 25 document or add reference to part 23 requirements throughout the document.		Comment Accepted.
	AC 20-185	4-6	4.2.7.3.2	foveal	not sure what you want here			Comment noted.
	AC 20-185	4-9	4.3.4.4.1.3 and 4.3.4.4.1.4	0.33 dots and 1.00 dot	Dots are not defined in the TSO or regulations for a CDI.	change to % scale		Discuss further. Never seen % scale deflection ever used in any other document.
	AC 20-185	4-10	4.5	compliant to RTCA/DO-200A	We do not show "compliance" to guidance only to regulations.	Change "compliant" to "meet the objectives of" or some other similar statement.		Comment accepted.
	AC 20-185	4-11	4.5.1.2	should comply with	same as above	change "comply" to "meet the objectives of"		Comment accepted.
	AC 20-185	4-12	4.5.4	"Compliance"	see above			Comment accepted.
	AC 20-185	5-3	5.2.5.4	DAL no less than B	This does not meet the part 23 guidance. Is this a part 25 or part 23 requirement?	Specify it is a part 25 document or add reference to part 23 requirements throughout the document.		SVGS can potentially apply to both part 23 and part 25. References in final doc.
	AC 20-185	6-1	6.1.1 and 6.1.2	Use of the word "compliance"	see above			Comment Rejected
	AC 20-185	6-2	6.2.1.2	The SVGS depiction does not degrade the presentation of essential flight information on either the HDD.	Not a complete sentence.			Rejected

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	6-5	6.2.5	Flare, Landing and Roll-out	If this is for a HDD down to 150 feet the pilot will be looking out the window and all fo the reference to flare, landing and roll-out does not apply.	numerious places in paragraph 6 Back to the comment if this is for a HDD or HUD or both?		Patially accepted.
	AC 20-185	6-6	Evaluation Matrix	This is full of HUD reference		Remove all reference to HUD		Accepted.

Comments Submitted By:	Mike Davison, Bill Witzig, Tony Piggot
Organization:	ANE-150
Phone:	78-238-7156

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
					The AC describes "for-credit" SVGS systems, but doesn't mention SA-only SVS. This might lead a reader to believe the only certification path for synthetic vision is to follow the guidance in the draft AC. Furthermore, AC 20-167, chapter 2, includes a description of all vision systems. AC 20-167 will need revision to include a description of SVGS.	Include a reference to AC 20-167 and a brief description of SVS. Update AC 20-167 with a description of SVGS.	Editorial	Comment Accepted. Text Modified.
		numerous	numerous		Excessive use of the word "should" in the document. According to plain language guidelines, the word "should" conveys a recommendation, not an obligation." Some of the paragraphs (70 word count) use the word "must," but the majority (140 word count) use "should."	Since an AC, in it's entirety, is not mandatory, the use of both requirements and recommendations is confusing. For consistency with plain language guidelines, requirement paragraphs must use the word "must." If we intend to convey both requirements and recommendations with an AC, then the use of the words "should" and "must" need explanation in the front matter of the document.	Conceptual	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

		3-3	3.2.1	"SVGS... should be comprised of the following components" "radio altimeter or equivalent."	Current SVS systems operate without a radar altimeter, height above terrain is derived from GPS altitude and the terrain database. Figure 2, which supports paragraph 3.2.1 does not show a RADALT in the block diagram, but instead shows a block for "height above terrain."	Listing a RADALT as required equipment is overly prescriptive. In keeping with performance based philosophy, change this to "capability to determine height above terrain"	Conceptual	Comment Rejected. RadALT is required equipment for SA Cat I ILS operations
		numerous	numerous		Numerous typos in the document. "VGSSVGS," "SVGSSVGS." "ATCAT" instead of "CAT" and Appendix "BB" instead of "B"		Editorial	Comment Accepted. Text Modified.
		4-4	4.2.3.13	"The SVGS should display radio altitude or equivalent"	Specifying a radio altimeter is overly prescriptive.	change to "the SVGS must display height above terrain"	Editorial	Comment Accepted. Text Modified.
		4-7	4.2.7.5.2	"The SVGS scene depiction positioning sensor should meet the positioning performance criteria contained in Technical Standard Order (TSO-)-C145c"	This is one example (of many) where the draft AC references a specific version level of a TSO or RTCA DO. Sometimes we state, "the current revision of DO-XXX" but in many other instances, we call out specific versions.	Eliminate the current version suffix from all TSO and RTCA DO references	Editorial	Comment Accepted. Text Modified.
		1-1	1.3.2	This AC does not address operational aspects of SVGSSVGS or any changes in aircraft operational capability that may result from the installation and approval of these systems.	Commented feels that this Ac should be vetted through AFS	Ensure AFS signoff on this AC	Conceptual	Comment Accepted. Text Modified.

Comments Submitted By:	George Harrum
Organization:	ASW-141
Phone:	817-222-4087

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
1	AC 20-185	1-1	1.1.1	In this advisory circular (AC), the Federal Aviation Administration (FAA) provides applicants with guidance for obtaining airworthiness for approval for equipment installation of SVGS in aircraft.	Why not just add SVGS to the existing AC 20-167. All of the requirements for synthetic vision are already stated in that AC. It would be easier to just add the SVGS MAPS as a reference and add the SVGS system requirements to that AC then to create a brand new AC.	Add the SVGS MAPS as a reference to AC 20-167 and revise the AC to add the SVGS system and installation requirements.	Conceptual	Comment Rejected. It is the feeling that SVS and EVS based systems are both "vision" systems they are inheirently different and keeping them together in the same document going forward invites confusion. This is the first step in generating seperated EVS and SVS AC's. Basic SVS will likely be pulled into this document but will remain in AC 20-167 for now due to the delay in the publication of AC 20-167A.
1	AC 20-185	1-1	1.1.4	This AC describes an acceptable means, but not the only means, to install and obtain airworthiness approval for equiment installation of SVGS of SVGS.	Redundant, "of SVGS."	Remove the redundant, "of SVGS."	Editorial	Comment Accepted.
2	AC 20-185	1-1	1.2	This AC is for airplane and rotorcraft manufacturers, modifiers, and type certification engineers seeking certification or installation guidance for their SVGSSVGS.	Redundant, "SVGS."	Remove the redundant, "SVGS."	Editorial	Comment Accepted.
3	AC 20-185	1-1	1.3.2	This AC does not address operational aspects of SVGSSVGS or any changes in aircraft operational capability that may result from the installation and approval of these systems.	Redudant, "SVGS."	Remove the redundant, "SVGS."	Editorial	Comment Accepted.
4	AC 20-185	1-2	1.4.5	Acronyms and definitions are in appendix BB.	There is no appendix BB	Remove the redundant B	Editorial	Comment Accepted.
5	AC 20-185	1-2	1.4.6	Purchase information is in appendix B.	I didn't see any purchase information for RTCA documents.	Add RTCA purchase information.	Editorial	Comment Accepted. Info added.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
6	AC 20-185	2-1	2.2.2.2	Provide for the visual transition from the instrument segment to the visual transition from the instrument segment to the visual segment approaching the missed approach point using the Depiction of Runway of Intended Landing (DRIL) to enable rapid acquisition of the visual references required to complete the landing.	Redundant phrase, "transition from the instrument segment to the visual."	Remove redundant phrase.	Editorial	Comment Accepted.
7	AC 20-185	4-2	4.2	Paragraphs 4.2.1.1 - 4.5.4.4	These paragraphs come straight from DO-359 Section 2 requirements. The use of shall in the MAPS translates to a must in the AC. Any repeat statements from AC 20-167 should be identical (e.g., AC 20-167, section 4-3, paragraph 5 states, "A potential terrain or obstacle conflict must be obvious to the pilot, and not conflict with TAWS or HTAWS requirements." Draft AC 20-SVGS, paragraph 4.2.1.9 states, "A displayed terrain or displayed obstacle conflict should be obvious to the crew.")	Change all use of the word "should" in paragraphs 4.2.1.1 - 4.2.1.16 to "must."	Conceptual	Accepted

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

8	AC 20-185	4-2	4.2.1.15	The pilot's ability to see and use the required primary flight display information such as primary attitude, airspeed, altitude, command bars, etc., should not be degraded. When recovery from unusual attitudes is required, SVGS primary displays should be clear and unambiguous. A quick glance interpretation of attitude should be possible for all unusual attitude situations, and other “non-normal” maneuvers, sufficient to permit the pilot to recognize the unusual attitude and initiate an appropriate recovery within one second. Information to perform effective manual recovery from unusual attitudes using chevrons, pointers, and/or permanent ground-sky horizon on all attitude indications is required.	DO-359 paragraph 2.2.1 requirement 17 states, "It must be ensured that the pilot's ability to see and use the required primary flight display information such as primary attitude, airspeed, altitude, command bars, etc., are not degraded."	Change the first sentence of paragraph 4.2.1.15 to read, "It must be ensured that the pilot's ability to see and use the required primary flight display information such as primary attitude, airspeed, altitude, command bars, etc., are not degraded."	Editorial	Accepted
9	AC 20-185	4-3	4.2.2.1	The VGSSVGS displays should be large enough to present information in a form that is usable, readable and identifiable to the flight crew at their Design Eye Positions (DEP), relative to the operational and lighting environment, and in accordance with the SVGS intended function(s), as described in AC 25-11B, chapter 3, paragraph 3.2.1.	Redundant "VGS"	Remove redundant "VGS"	Editorial	Accepted
10	AC 20-185	4-4	4.2.3.14	The SVGS depiction shall not interfere with the interpretation and use of cues and guidance presented on the PFD used for the conduct of the approach procedure.	The word shall is too ambiguous. Does the applicant have to do it, or not?	Remove the word shall and replace it with the word must.	Editorial	Accepted

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11	AC 20-185	4-5	4.2.6.2	The VGSSVGS minification factor for a head down should not be greater than 3:1. Larger minification values may be acceptable if shown to fully support the intended functions.	Redundant "VGS"	Remove redundant "VGS"	Editorial	Accepted
12	AC 20-185	4-8	4.3.3.3	During the final approach if the SVGS operation cannot be completed due to system malfunction an alert for loss of SVGGS should be provided.	Redundant G in SVGGS.	Remove redundant G.	Editorial	Accepted
13	AC 20-185	4-9	4.3.4.4.1.3.2	If a System Safety Analysis indicates the probability of misleading guidance information such that the aircraft hazardously deviates from the required flight path between the normal 200 feet AGL HAT and the SVGS 150 feet AGL HAT is low enough to meet or exceed the requirements of paragraph 5.2., then an ILS Cat I TTA of 6 seconds may be shown to provide an equivalent level of safety.	System Safety Analysis should be System Safety Assessment	Change System Safety Analysis to System Safety Assessment	Editorial	Accepted
14	AC 20-185	4-12	4.5.3.2	The obstacle database processes should provide Data Assurance Level 2 with a probability of undetected corruption no worse than 1x1010-5.	Redundant 10 in 1x1010-5	Remove redundant 10.	Editorial	Accepted
15	AC 20-185	5-1	5.2.2.1	The intended function should be clearly described in the Functional Hazard Analysis (FHA) and System Safety Analysis (SSA).	System Safety Analysis should be System Safety Assessment	Change System Safety Analysis to System Safety Assessment	Editorial	Accepted

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
16	AC 20-185	5-1	5.2.2.1	This should include ILS guidance being used, the SA CAT I ILS decision altitude (150 feet AGL), the minimum RVR being considered for the operation and whether the operation is being conducted head down, head up or both.	Runway visual range (RVR) is not defined prior to this paragraph nor is it defined in Appendix B.	Define RVR acronym	Editorial	Accepted
17	AC 20-185	5-1	5.2.2.2	The ability of the SVGS to safely perform its intended function, including the potential to display hazardously misleading information, shall be assessed according to 14 CFR §§ 23.1309 and 25.1309, AC 25-11B (Chap. 4), AC 25-19, Certification Maintenance Requirements, AC 25-1309-1A, System Design and Analysis, AC 23.1311-1C, Installation of Electronic Display in Part 23 Airplanes and AC 23.1309-1C, System Safety Analysis and Assessment for Part 23 Airplanes, as appropriate. In accordance with the above an aircraft level FHA shall be prepared by the applicant to identify the hazard levels associated with SVGS failure conditions and to determine the required system design assurance and safety levels.	The word shall is too ambiguous. It is used twice in this paragraph.	Remove the word shall and replace it with the word must.	Editorial	Accepted
18	AC 20-185	5-4	5.2.8	All maintenance requirements identified as required for the continuing airworthiness of the SVGSSVGS installation or for the safety of the operation must be established. Approved manufacturer data may be used to establish these requirements.	Redundant, "SVGS."	Remove the redundant, "SVGS."	Editorial	Accepted
19	AC 20-185	6-2	6.2.1.2	The SVGS, when used in combination with other aircraft systems, should be shown that it meets the following general requirements. The evaluation should demonstrate that:	The SVGS must be able to demonstrate these criteria.	Replace both uses of should with must.	Editorial	Accepted

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

Comments Submitted By:	Clark Davenport in coordination with various ASW110 staff members
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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
1		General			Is there a reason the use of the term "missed approach point" is continually used in the document vs decision altitude or decision height? An electronic glide path is available for these ILS approaches...infering that the EGP is not valid or is not to be used past the CAT I DA? See multiple comments.	Change instances of missed approach point to decision height and MAP to DH. Clarify	E	Comment Accepted. Text Modified.
1	AC20-SVGS	1-1	1.2	Title 14 §§ 23.773, 25.773 27.773 and 29.773 address vision systems using a transparent display surface located in the pilot's outside view, such as a HUD, head-mounted display, or other equivalent display.	Confusing sentence. Unsure what we want it to convey. Will the new rules be published by the time this AC is published?		Conc	Comment Accepted. Text Modified. New rules will post-date this AC.
2		1-1	1.3.2	. . . SVGSVGS . . .	redundant SVGS	Strike one SVGS	F	Comment Accepted. Text Modified.
3		2-1	2.2	The applicant must clearly define the intended function of your SVGS	Sentence "person" does not match	You must clearly….your SVGS." OR "The applicant….their SVGS."	E	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

4		2-1	2.2.1	Provide position assurance and approach guidance integrity monitoring with critical time to alert to a published missed approach point (MAP) of 150 feet AGL above ground level (AGL).	What is the intent here; Does the system have to alert the pilot at 150' AGL? What is "critical time" to alert? Do we want the system to alert a MAP (point in space), the MDA/DA (baro based alt), or DH/MDH (AGL)? Is MAP the appropriate term? Thought a MAP is a point in space defined either by geocoord or by dist/bearing from a ground based source, usually associated with a non-precision approach. The MDA is a baro based altitude. Likewise ground nav aid based precision approaches do not have a "MAP" but the "go around point" is defined by the DA.	Depends on intent of sentence? Regardless please clarify. Specify where to find or calculate "critical time"....based on aircraft speed class, etc.? As per section 4.3.4.4.2? If "critical time to alert is the same as time to alert as defined in 4.3.4, consider removing term 'critical" or define what is meant by "critical".	E	Comment Accepted. Text Modified.
5		2-1	2.2.2.1	Enable the pilot to determine the MAP	Do we mean the pilot's ability to identify the location of the MAP on the display or determine when the aircraft arrives at the MAP? The latter ("determine") includes the need to "identify"	Recommend: "Enable the pilot to determine when the aircraft arrives at the MAP." (or DH)		Comment Accepted.
6		2-1	2.2.2.2	Provide for the visual transition from the instrument segment to the visual transition from the instrument segment t o the visual segment approaching the missed approach point using thethe Depiction of Runway of Intended Landing (DRIL)	Underlined text redundant. Muddles sentence	Suggest: "Provide for the visual transition from the instrument segment to the visual segment approaching the missed approach point using the Depiction . . ."		Comment Noted. Industry Consensus language retained by reference.
7		2-1	2.2.2.3	Enable the flight crew to visually monitor and verify that at 150 feet AGL the trajectory is leading to the touchdown zone.	"visually monitor". Does it mean using the SVGS or out the window? Use the SVGS to verify that the trajectory is leading to the TDZ? "visually" in pilot-talk tends to mean "out the window" when used in the context of approaches.	Suggest clarifying that SVGS gives the pilots sufficient cues regarding trajectory to the TDZ so that when they transition to the visual segment (OTW), their OTW picture is similar to the SVGS picture.		Comment Noted. Industry Consensus language retained by reference.
8		3-1	3.1.3	The SVGS provides the pilot with a dynamic perception of position, trend, and motion, which facilitate the pilot's transition to the use of visual references out-the-window (OTW).	Sentence could be clearer. Does not read well	recommend: "The SVGS provides the pilot with a dynamic perception of position, trend, and motion, which facilitate the pilot's transition to the use of out-the-window (OTW) visual references."	E	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
9		3-1	3.1.3	The interpretation of the aircraft's present and future position with respect to the runway of intended landing, by the pilot allows for improved flight technical error performance and reduced cognitive workload.	Is this a factual statement? Does this statement add anything to the document /paragraph? What is the evidence for a pilot flying the aircraft with SVGS having improved FTE over a coupled approach? Depending on the pilot and the type of approach could increase cognitive workload or other workload	Delete. There are too many variables to flatly state that "interpretation" "by the pilot" allows for improved FTE.		Comment Noted. Industry Consensus language retained by reference.
10		3-3	3.1.7 (started on 3-2)	SVGS operations will require a means in the SVGS design to meet the required time to alert for error detection.	Not clear. What is the allowable "time to alert"? Defined in the MASPS?	Recommend: "The SVGS design will need to meet the required time to alert for error detection for SVGS operations." Recommend more information on "time to alert" and "critical time to alert"		Comment Noted. Time to alert language was consistent with CAT II requirements.
11		3-3	3.2.2	Figure 2 illustrates the notional SVGS elements. The SVGS Position Monitor ensures high integrity positioning of the SVGS scene within defined accuracy limits. For an ILS approach, the Position Monitor utilizes elements of the Position, Navigation and Timing (PNT) function (e.g., Global Position System (GPS), along with ILS deviations (1), to provide an independent determination of the aircraft's location in space. This is then compared with the three-dimensional positioning information provided by the PNT which is used to position the SVGS scene.	Is there consideration for using SVGS for RNAV approaches with LPV LOSs? If so, does this assume multiple position sources?			SA CAT I Only.
12		3-3, 3-4	3.2.2 and Figure 2	Figure 2 illustrates the notional SVGS elements. . . . the Position Monitor utilizes elements of the Position, Navigation and Timing (PNT) function (e.g., Global Position System (GPS), along with ILS deviations (1), to provide an independent determination of the aircraft's location in space.	Figure 2 has a block labeled "Independent Positioning". Is this another position source like an IRU? The diagram makes it appear the IP is a standalone entity with only an output to the SVGS monitors.	Need clarification between the text and what is in the diagram?		Comment Noted. Figure 2 was deleted.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

13		3-4	3.3.2	In this AC, the SVGS is expected to be used with the ILS approach guidance systems.	Looking ahead: SVGS technology could be suited for application to RNAV approaches with LPV levels of service. Any thought to discussing certification assessment of usability/acft ability to support SVGS approaches to 150' against RNAV approaches even if AFS does not allow operators to fly them? Rationale: When operators request and AFS considers allowing SVGS for use with RNAV, the aircraft and installed equipment is already certified.		C	Curently it is only for SA CAT I ILS. We are not convinced that the DO-359 standard is sufficient for non-ILS approaches.
14		3-5	3.4.1	". . .critical time . . ."	What is the time? See comment 4			
15		3-5	3.4.2.1	Enable the pilot to determine the MAP.	See comment 5	Depending on disposition of comment 5: Suggest rewording to "Enable the pilot to determine when the aircraft arrives at the DH."		Comment Noted. Industry Consensus language retained by reference.
16		3-5	3.4.2.2	Provide for the visual transition from the instrument segment to the visual segment approaching the missed approach point using the DRIL to enable rapid acquisition of the visual references required to complete the landing.	I think the key is the SVGS to provide sufficient and accurate cues to allow the pilot to transition from head-down to head-up and not have to spend time figuring out what and where they are looking.	Provide for the pilot head down to head up transition from the instrument segment to the visual segment approaching the missed approach point using the DRIL to enable rapid acquisition of the visual references required to complete the landing. See paragraphs 4.2.5.2.		Comment Noted. Industry Consensus language retained by reference.
17		3-5	3.4.2.3	Enable the flight crew to visually monitor and verify that at 150 feet AGL the trajectory is leading to the touchdown zone	See comment 7			Comment Noted. Industry Consensus language retained by reference.
18		4-1	4.1.13	The SVGS must provide a level of accuracy and position assurance that delivers the aircraft to the missed approach point within the lateral containment required by chapter 4 of this AC.	And vertical containment, if there is such a thing?			Comment Noted. Industry Consensus language retained by reference.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
19		4-1	4.2.1.3	The display status of the SVGS scene depiction either through crew de- selection, or as a result of a failure, should be clearly indicated or obvious to the crew.	Where should this indication be located? In the pilot's primary FOV? "Clearly indicated" could be construed as an annunciation on the center pedestal that states "SVGS Degrade". It is clearly annunciated but outside the pilot's primary or secondary field of view.	Add...."as required in paragraphs 4.2.3.11 and 4.3.2.4 in this AC." or similar wording.		Comment Accepted. Text Modified.
20		4-1	4.2.1.4	The scene should be depicted egocentrically from the pilot’s perspective	This is a repeat of two previous uses of the term "egocentrically" or "egocentric". By definition, isn't an "egocentric view" from the observer's (pilot's) out the window perspective?	Needed? If not, combine with 4.2.1.1 or delete?		Comment Accepted. Text Modified.
21		4-1	4.2.1.5	The crew should be able to perceive relative distances to prominent topographical features.	Is the intent is to provide sufficient visual mapping cues between the SVGS and the OTW view? Is not one of the features of an egocentric perspective display the inability to depict distances along the line-of-sight? The use of monocular cueing (relative size, motion parallax, etc) can help. However the wording "perceive relative distances" can infer abilty to distinguish "distance" measures between objects and the aircraft. Numerous studies concluded that use of a second, top-down or birds-eye view display is needed to gauge distances to objects.	Not sure what to suggest. The use of "distance lines" or other imbedded "analog" cues on the display can add clutter if conspicuous. Otherwise, should we add the suggestion of a top-down moving map presentation with terrain and obstacles to assist with distance correlation....or is that too prescriptive?		Comment Noted. Industry Consensus language retained by reference.
22		4-2	4.2.1.1.4	The SVGS F Field of R Regard (FOR) should account for possible aircraft attitudes and wind effects, and should comply with paragraph 4.2.5.2 of this AC.	"F" and "R" typos			Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

23		4-3	4.2.2.1	The VGSSVGS displays should be large enough to present information in a form that is usable, readable and identifiable to the flight crew at their Design Eye Positions (DEP), relative to the operational and lighting environment, and in accordance with the SVGS intended function(s), as described in AC 25-11B, chapter 3, paragraph 3.2.1	Presume "VGSSVGS" is typo. If not, needs explanation prior to using as acronym.	If typo, delete "VGS" "The SVGS displays should be large enough . . ."		Comment Accepted. Text Modified.
24		4-3	4.2.3.2	The terrain in the area surrounding the runway should not be depicted floating above or below the runway. A method for integrating the runway and terrain data must be incorporated into the system	This appears to more of a scene depiction issue than a flight instrument display issue	Move to 4.2.1 SVGS Scene Depiction		Comment Accepted. Text Modified.
25		4-3	4.2.3.4	Image features which provide a sense of groundspeed, altitude trend and direction due to aircraft movement through the depicted scene, if not inherently provided by the terrain depiction	"Image features" leads one to think this is a SVGS scene function. "Flight instrument display" infers flight data (speed, altitude, attitude, etc provided in more conventional PFD.) presented to the pilot in addition to SV display information?	Either remove "Image feature"; Change to "flight instrument displays will provide groundspeed, altitude trend . . ."; OR move to 4.2.1 since it is a scene depiction function.		Comment Accepted. Text Modified.
26		4-4	4.2.3.14	The SVGS depiction shall not interfere with the interpretation and use of cues and guidance presented on the PFD used for the conduct of the approach procedure.	Should it be "the SV depiction"? The GS, presumably refers to "guidance system". The wording makes it sound as if there are two sets of guidance symbology and information; one from the SVGS and the other from more traditional sources. The objective, I think, is to integrate the SV with the primary flight information vs. have two sets of info.	Depending on the intent of the sentence....suggest changing SVGS to "synthetic vision image" or "synthetic vision depiction"....		Comment Accepted. Text Modified.
27		4-5	4.2.6.2	". . . VGSSVGS . . ."	See comment 23			Comment Accepted. Text Modified.
28		4-8	4.3.4.2	The alerts should be active at least from 300 feet height above touchdown (HAT) to the missed approach point, but the glide path alert should not be active beyond the missed approach point	How and where in published approach is the MAP defined and annotated? See http://155.178.201.160/d-tpp/1508/00375I28RSAC1.PDF as an example (KSFO ILS RWY 28R (SA CAT I))			alerts are linked to HAT and not DH.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

29		4-10	4.5	"RTCA/DO-200A"	200B is current as of Jun 15.	Change ref to RTCA/DO-200B where referred to in AC	E	Comment Accepted. Text Modified.
30		4-11	4.5.1.4.	"Data Assurance Level"	In 200B referred to as "Data Processing Assurance Level". Use of Design Assurance Level could confuse with DO-178 wording.	Change to Data Processing Assurance Level (DPAL)	E	Comment Accepted. Text Modified.
31		4-11	4.5.1.4.; 4.5.2.3;	". . . Undetected corruption no worse the 10^-5)	This comment implies10^-5 is Major. Does (can) undetected corruption lead to misleading presentation to the pilot? IF YES, then what is the hazard classification for misleading SV and data for a system used to navigate and control the aircraft to minima below CAT I ILS minima?	What is the hazard classification for undetected/unannunciated misleading SVGS for the aircraft and occupants?		DO-359 3.2.4 addresses this.
32		4-12	4.5.3.2	. . . no worse than 1x1010-5	typo			Comment Accepted. Text Modified.
33		5-1	5.2.1	. . . the performance of GNSS First time usage – Spell out required for operations to a 200 feet AGL minima, augmented as required to permit extension of the approach path to 150 feet AGL HAT.	Unsure of the meaning. Typo or non-corrected edit?	Clarify.		Comment Accepted. Text Modified.
34		5-1	5.2.2.2	14 CFR §§ 23.1309 and 25.1309, AC 25-11B (Chap. 4), AC 25-19, Certification Maintenance Requirements, AC 25-1309-1A, System Design and Analysis, AC 23.1311-1C, Installation of Electronic Display in Part 23 Airplanes and AC 23.1309-1C, System Safety Analysis and Assessment for Part 23 Airplanes, as appropriate.	What happens if the FHA for misleading = hazardous but the DPAL is only designed for major?	Add: 14 CFR 29.1309 and AC 29-2C-29.1309. What if the FHA for misleading = hazardous but the DPAL for SVGS is only designed to accomodate hazard classification of major?		DO-359 3.2.3 addresses this.
35		5-3	5.2.4.1	The applicant should be required to demonstrate a satisfactory safety (failure and performance) level which should be that required for SVGS approaches to a missed approach point of 150 feet AGL.	Sentence is not clear	Not sure what to suggest since not sure what trying to convey.		Comment Noted.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
36		5-3	5.2.4.1	. . . required for SVGS approaches to a missed approach point of 150 feet AGL.	It is not just 150 feet AGL but also lower weather minima. The sentence should include the weather minima. Demonstrating function to 150' AGL on a VMC day does not show satisfactory safety level from a pilot workload standpoint.	. . . required for SVGS approaches to a missed approach point of 150 feet AGL and authorized visibility.		Comment Accepted. Text modifired to address the issue.
37		5-3	5.2.4.3; 5.2.4.4	Failure to detect and annunciate hazardous SVGS malfunctions not obvious to the flight crew within a defined time (see paragraph 4.3 above) must be shown to be at least Remote/Improbable The probability of un-annunciated hazardously misleading guidance information must be shown to be Extremely Remote	What is the difference between failing to detect and annunciate a hazardous malfunction and unannunciated hazardously misleading information? Is the difference a hazardous malfunction that does not lead to misleading information? Is the key the "defined time"? If a hazardous malfunction occurs and the crew is not notified with a defined time, how come it is not considered "Hazardous" leading to "extremely remote? Would these hazard classifications change if RNAV were allowed vs. only ILS? Contradictions between 4.5 and 5.2. 4.5 says 10^-5 yet 5.2 talks hazardously misleading (10^-7)	This is confusing. Would like the opportunity to run past our systems folks for further comment please.		Comment Noted.
38		6-2	6.2.1.2, bullet 5	There are no conditions where the SVGS could be hazardously misleading without pilot awareness	How does this line-up with 5.2.4 and 4.5? Is there a conflict?			Comment noted. Paragraph deleted in editing proccess.
39		A-3	Section 1	SVGS: The installed SVGS has been demonstrated to meet the criteria for AC 20-SVS/SVGS for SVGS to be used for DA/DH or MDA down to 150 feet AGL HAT	AC20-SVS/SVGS. Is this typo? Also, if tied to ILS, reason for listing MDA as floor altitude?			Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

40		A-3	Section 2. 1	. . . (or later approriate version) . . .	We have been advised by our counsel that IBR of QRG's, POHs, guides etc is OK as long as we do not use "or latest revision" "latest version", etc. Rationale was if in limitations then means an FAA approved document and FAA may not have approved the rev or the latest "appropriate" revision	Consider deleting the "later appropriate version" or clear wording with the lawyers.		Comment Accepted. Text Modified.
41		A-3	Section 2.2	The system must utilize software version <*insert version identification* >	What happens if software is rev'd? Will AFM limitations be rev'd also?			The AFM needs to accurately reflect the systems installed in the aircarft.
42		A-3	Section 2.2	A valid and compatible database must be installed and contain current data	How is the pilot to know that the database is current?	Add section body of AC on providing means to pilot that pertinent databases are compatible and current.		Comment Accepted. Additional clarification on databases added.
43		A-4	Abnormal Procedures	If Loss of Integrity Monitoring message is displayed, revert to an alternate means of navigation appropriate to the route and phase of flight or periodically cross-check the GPS guidance to other, approved means of navigation	If LOIM message displayed, how does the pilot know if it has affected the SVGS?	Add to end of sentence: Do not use SVGS for approaches below CAT I ILS published minima.		Comment Accepted.
44		B-1	B.1.2	Approach Lighting Designators	The AC does not specifically refer to approach lighting	Consider deleting		Comment Accpeted.
45		B-1	b.1.3	APV (EU OPS)	Necessary? AC does not mention APV.	Consider deleting		Comment Accepted.

Comments Submitted By:	
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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
	AC 20-185	Title page,	Paragraph 1	The second sentence cites “Title 14 of the Code of Federal Regulations (14 CFR) part 23, 25, 27, or 29”. It should say “parts” because it refers to more than one part	Consistency of formatting	Consider changing “part” to “parts” after “(14 CFR).	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page ii,	Table of Contents lines 1.2, 1.3, 3.1, 3.2, 3.3, 3.4, Chapter 4, 4.1, 4.2, Chapter 5, 5.1, Chapter 6 and UNIVERSAL	"AC" in lines 1.2 and 1.3 is unnecessary. "SVGS" is unnecessary in lines 3.1, 3.2, 3.3, 3.4, Chapter 4, 4.1, 4.2, Chapter 5, 5.1, and Chapter 6.	Clarity/Consistency of formatting	Because of the context provided by preceding paragraphs and general formatting rules provided by the FAA (see ORDER 1320.460, *FAA Advisory Circular System*), it is understood that "audience" and "applicability" refer to the AC. Similarly, since SVGSs are the subject matter of this AC, it is not necessary to repeat "SVGS" in the chapter and subsection titles in chapters 3, 4, and 5. Therefore, please consider striking "AC" from lines 1.2 and 1.3 and "SVGS" from 3.1, 3.2, 3.3, chapter 4, 4.1, 4.2, chapter 5, 5.1, and chapter 6. Also, consider striking "Synthetic Vision Guidance System" from line 3.4. If these occurrences are removed, please also remove them from their corresponding chapter and subsection titles (and any other unnecessary occurrences) throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.1.1	The words "advisory circular" is are unnecessary, because "AC" has already been established on the title page.	Consistency of formatting	Please strike "advisory circular" after "In this" in the first sentence. Also, please strike the parentheses around AC after "advisory circular" in the first sentence.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.1.1 and UNIVERSAL	It seems like "SVGS" should be plural in the first usage in the first sentence'	Clarity/Consistency of formatting	Unless it is common FAA usage to use SVGS as singular and plural, please consider changing "SVGS" to "SVGSs" here and wherever it is used in the plural throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.1.3	The first sentence is confusing because it is not a complete sentence.	Clarity/Grammar	Please revise the first sentence so that it expresses a complete thought.	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 1-1,	Paragraph 1.1.3 and UNIVERSAL	The AC titles in the first sentence should be italicized.	Consistency of formatting	Please format the titles of the ACs in the first sentence, as follows: "…AC 25-11B, Electronic Flight Deck Displays, AC 25.1329-1B, Approval of Flight Guidance Systems and AC 23.1311-1C, Installation of Electronic Display in Part 23 Airplanes)." Please correct similar occurrences throughout the document	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.1.3 and UNIVERSAL	The usage of "head-down" in this sentence is correct but the usage of "head-up" and "head-down" and "head up" and "head down" is inconsistent throughout the document.	Clarity/Consistency of formatting	Check usage of "head-up", "head up" and "head-down" and "head down" throughout the document. "Head-up" or "head-down" should be used if they are being used as modifiers.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.1.4	"This AC" in the second sentence could be replaced by "It". Also, "of SVGS" is repeated.	Clarity/Ease of reading	In the first sentence, consider replacing "This AC" with "It". Also, strike the second occurrence of "of SVGS" as follows: "It describes an acceptable means, but not the only means, to install and obtain airworthiness approval for equipment installation of SVGS of SVGS."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1,	Paragraph 1.2 and UNIVERSAL	In the first sentence, "was written" might be clearer for the reader than "is". Also, there is a duplicate occurrence of "SVGS" at the end of the sentence.	Clarity	Consider changing "is" to "was written". Also, strike the second occurrence of "SVGS" as follows: "This AC was written for airplane and rotorcraft manufacturers, modifiers, and type certification engineers seeking certification or installation guidance for their SVGSSVGS." Please remove duplicate occurrences of "SVGS" throughout the document.	Editorial	Comment Accepted. Text Modified.

	For detailed instructions on how to fill out the columns below, please see the Instructions sheet.							
	AC 20-185	Page 1-1,	Paragraph 1.2 and UNIVERSAL	“Title 14” should be changed to “Parts” in the second sentence.	Consistency of formatting	Consider changing “Title 14” to “Parts”, as follows: “Parts 23.773, 25.773, 27.773, and 29.773…” Rule: Section 10. i. of ORDER 1320.460, FAA Advisory Circular System When you first cite the CFR, you must use the full citation, which includes the title and part, or section, numbers (for example, "14 CFR part 27" or "14 CFR 153.1"). Do not insert a section symbol (§) between the CFR acronym and section number. After you have used the full citation in your AC, any subsequent citation of that same part/section, or other sections of that same part, does not need to include the CFR acronym. For subsequent citations to a section, you should only use the section symbol (§), except as discussed in paragraphs (1) and (2) below. For example, your first reference is written as "14 CFR 25.571," and thereafter you may write "§	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 1, Paragraph 1.2 and UNIVERSAL		There are commas missing after “25.773” and “27.773” in the second sentence.	Consistency of formatting	Insert a comma “25.773” and “27.773”, as follows: “Title 14 §§ 23.773, 25.773, 27.773, and 29.773 address vision systems using ...” Rule: GPO Style Manual, section 8.42. Insert a comma “after each member within a series of three or more words, phrases, letters, or figures used with and, or, or nor.” Please correct any other occurrences, throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-1, Paragraph 1.3.1		The use of “when” after “rotorcraft” seems imprecise referring to “rotorcraft”.	Clarity	If when makes sense in this situation, please leave it as is. If not or if it is clearer, consider replacing “when” after “rotorcraft” to “that is”, as follows: “The method of compliance described in this AC can be used to obtain a TC, STC, or ATC for an airplane or rotorcraft that is equipped with SVGS equipment.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-2,	Paragraph 1.4.5	This sentence refers to appendix “BB” instead of appendix “B”.	Clarity/Accuracy of Information	Please remove second occurrence of “B” in reference to appendix B.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 1-2,	Paragraph 1.4.6	For clarity and ease of reading, “Certain” should be replaced by “Some” and “is” should be replaced with “was taken”.	Clarity/Ease of reading	Please consider changing “Certain” to “Some” and “is” to “was taken”, as follows: “Some material in this AC was taken from RTCA/DO-359, Minimum Aviation System Performance Standards (MASPS) for Synthetic Vision Guidance Systems.”	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 2-1,	Paragraph 2.1	It seems like it might be clearer, and easier for the reader to understand, if the order of these sentences were switched.	Clarity	Consider switching the order of these sentences and changing the period at the end of the second sentence with a colon, as follows: “This AC specifically addresses SVGS when implemented on a HDD. The applicant is responsible for the following contents in the airworthiness package (for the purpose of this AC):”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 2-1,	Paragraph 2.2	“Your” should be replaced with “his/her” because it refers to “the applicant”.	Grammar	Replace “your” after “function of” with “his/her”, as follows” “The applicant must clearly define the intended function of his/her SVGS.”	Editorial	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	Page 2-1,	Paragraph 2.1.1, 2.1.2, 2.1.3, and 2.1.4	The formatting of the list items on lines 2.1.1, 2.1.2, 2.1.3, and 2.1.4 is repetitive and wordy. If they were written a bit more concisely they would be easier for the reader to understand. Also, so that chapter 5 is referenced before chapter 6, the order of the last two items in this list should be switched (i.e., move “SVGS Installation Considerations” to line 2.1.3 and “Performance Requirements and Evaluation Criteria” to line 2.1.4.”	Clarity/Ease of reading	Consider changing the formatting of the items in this list. For example— “2.1.1 Intended Function (see paragraph 2.2.); 2.1.2 General Operations (see chapter 4 for further information on this topic and on specific performance criteria); 2.1.3 Performance Requirements and Evaluation Criteria (see chapter 6); 2.1.4 SVGS Installation Considerations (see chapter 5).” Also, consider changing the order of the last two items in this list: move “SVGS Installation Considerations” to line 2.1.3 and “Performance Requirements and Evaluation Criteria” to line 2.1.4.”	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 2-1, Paragraph 2.2 and UNIVERSAL		Because it is not an independent clause, the second sentence should end with an em dash instead of a colon.	Grammar	There are two options for this sentence. Either turn it into a complete sentence or change the colon to an em dash. See examples below: 1. “In this AC, the purpose of the SVGS is to—” 2. “In this AC, the purpose of the SVGS is to perform the following:” RULE: When a complete sentence introduces a list—an independent clause—use a colon. When introducing a list with a dependent clause, use an em dash. Throughout the document, please change all appropriate occurrences to maintain consistency.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 2-1,	Paragraph 2.2.3 and 2.2.4	Are these paragraphs supposed to go with the list above them (2.2.2.1, 2.2.2.2, and 2.2.2.3)?	Clarity/Consistency of formatting	If these paragraphs belong with the list above them, please change the formatting and paragraph numbers to correspond to the list (e.g. 2.2.2.4 and 2.2.2.4). Also, to keep with the formatting of the list, consider changing the sentence in paragraph 2.2.3 to the following: “Enable the pilot to maintain a stabilized approach within the required flight technical error with minimum workload when using manual flight controls to fly the aircraft.”	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 2-1,	Paragraph 2.2.1	There is an extra occurrence of "AGL" in this sentence.	Clarity	Strike the "AGL" after "150 feet", as follows: "…alert to a published missed approach point (MAP) of 150 feet AGL above ground level (AGL)."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 2-1,	Paragraph 2.2.2	It seems like there should be a lead-in sentence to introduce the list below 2.2.2.1, 2.2.2.2, 2.2.2.3.	Clarity/Ease of reading	Consider adding a lead-in sentence after this sentence. For example—"The following are examples of xxx:" or something to that effect.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 2-1,	Paragraph 2.2.2.2	There is some repeated text in this sentence.	Clarity	Please strike "visual transition from the instrument segment to the" after "instrument segment to the", as follows: "Provide for the visual transition from the instrument segment to the visual transition from the instrument segment to the visual segment approaching the missed approach point using the Depiction of Runway of Intended Landing (DRIL) to enable rapid acquisition of the visual references required to complete the landing."	Editorial	Comment Accepted. Text Modified.

	For detailed instructions on how to fill out the columns below, please see the Instructions sheet.							
	AC 20-185	Page 3-1,	Paragraph 3.1.1	In the last sentence in this paragraph “assure” is used where “ensure” is more appropriate. Also, adding “also” at the end of the sentence would add clarity.	Clarity	Change “assure” to “ensure. While these words are often used interchangeably, “ensure” is a better word for this application. Please replace “assure” with “ensure” as per the following rule: Rule: “Assure – to tell someone something positively or confidently to dispel doubt or anxiety. It is to promise or pledge to someone so as to remove doubt or anxiety. Ensure – to make certain that some outcome shall occur or be the case. It is something you do to guarantee or confirm an event, condition, or outcome.” And consider inserting “also” after “included”, as follows: “Additional flight instrument symbology and monitors to ensure accurate rendering of the external scene are included also.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-1,	Paragraph 3.1.2 and UNIVERSAL	It is unclear which operations “these operations” refers to in the last sentence. Also, “ground based” is often hyphenated because it is used as an adjective.	Clarity/Grammar	Please clarify to which operations “these operations” refers. Consider adding a hyphen to “ground based” (“ground-based”), unless it is commonly used without a hyphen in FAA literature. If changing to hyphenated, please update all other occurrences throughout the document.	Editorial	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	Page 3-2,	Paragraph 3.1.5 and UNIVERSAL	In the second sentence, as with "ground based" in the previous example, "FPV based" and "attitude based" are being used as adjectives and would normally be hyphenated.	Clarity/Grammar	Consider adding a hyphen to "FPV based" and "attitude based" ("FPV-based" and "attitude-based"), unless they are commonly used without a hyphen in FAA literature. If changing to hyphenated, please update all other occurrences throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-2,	Paragraph 3.1.5	In the second sentence, the comma after "FPV based" is unnecessary and could be confusing to the reader.	Clarity	Please strike the comma after "FPV based", as follows: "…command guidance is provided by either an FPV based or attitude based command guidance system (flight director)."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-3,	Paragraph 3.1.7	The third sentence might be clearer if "in the SVGS design" was moved after "error detection.	Clarity/Ease of reading	Consider moving "in the SVGS design" after "error detection", as follows: "SVGS operations will require a means to meet the required time to alert for error detection in the SVGS design."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-3,	Paragraph 3.1.7	In the fourth sentence, "ATCAT II" is used, but it has not been defined.	Clarity	Unless it is a commonly understood FAA term, please define "ATCAT".	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-3,	Paragraph 3.2.1 (viii) and UNIVERSAL	There should be a period after "FPV".	Consistency of formatting	Strike semicolon after "FPV" and replace with period. Please ensure that all lists throughout the document follow this format: • Item; • Item; • Item; • Item.	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 3-3,	Paragraph 3.2.2	Because it is enclosed in parentheses, “GPS”, which in this case is enclosed in parentheses within parentheses in the third sentence, should be enclosed in brackets instead.	Consistency of formatting	Please enclose “GPS” in brackets, as follows: “For an ILS approach, the Position Monitor utilizes elements of the Position, Navigation and Timing (PNT) function (e.g., Global Position System [GPS]), along with ILS deviations (1), to provide an independent determination of the aircraft’s location in space.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-3,	Paragraph 3.2.2	In the fourth sentence, there should be a comma after “PNT”.	Grammar	Please insert a comma after “PNT”, as follows: “This is then compared with the three-dimensional positioning information provided by the PNT, which is used to position the SVGS scene.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-4, Paragraph		Replacing “reaching” after “until” with “is reached” and moving it to after “approach point” would make the second sentence easier to understand.	Clarity/Ease of reading	Consider striking “reaching” after “until” and inserting “is reached” after “approach point”, as follows: “As with any instrument approach, transition to the visual segment is not required until the missed approach point is reached.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-5,	Section 3.4 General Design Goals	This section contains text that is identical to the text in section 2.2 *Intended Function* .	Ease of reading	Is this duplication necessary? If not, consider removing or reworking this section.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 3-5,	Paragraph 3.4.2	It seems like there should be a lead-in sentence to introduce the list below 3.4.2.1, 3.4.2.2, 3.4.2.3.	Clarity/Ease of reading	Consider adding a lead-in sentence after this sentence. For example—“The following are examples of xxx:” or something to that effect.	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 3-5,	Paragraph 3.4.3	The structure of the sentence in paragraph 3.4.3 is inconsistent with the others in the list (3.4.2.1, 3.4.2.2, 3.4.2.3).	Clarity/Consistency of formatting	To keep with the formatting of the list, consider changing the sentence in paragraph 3.4.3 to the following: “Enable the pilot to maintain a stabilized approach within the required flight technical error with minimum workload when flying the aircraft using manual flight controls to fly the aircraft.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-1,	Paragraph 4.2.1.2	The comma after “grid lines” is incorrectly placed and could confuse the reader.	Clarity/Ease of reading	Strike the comma after “grid lines”, as follows: “If not inherent in the terrain depiction, the scene should include flow elements such as texturing or grid lines that give a sense of motion while on the final approach segment.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-2,	Paragraph 4.2.1.14	Do “F” and “R” belong in this sentence?	Clarity	If “F” and “R” are cut-and-paste mistakes, please strike them, as below: “The SVGS F Field of R Regard (FOR) should account for possible aircraft attitudes and wind effects, and should comply with paragraph 4.2.5.2 of this AC.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-2,	Paragraph 4.2.1.15	There is a comma missing after “information”.	Clarity/Ease of reading	Please add a comma after “information”, as follows: “The pilot's ability to see and use the required primary flight display information, such as primary attitude, airspeed, altitude, command bars, etc., should not be degraded.”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 4-2,	Paragraph 4.2.1.16	What is the reverse of the features mentioned in the first sentence? Is this something that would be understood by the reader? Also, after the second sentence, there is a “D.” that seems out of place.	Clarity	Unless it is something that is likely to be understood by the reader of this AC, consider adding some context that explains what the reverse of the features mentioned in the first sentence are. Strike “D.” after the second sentence.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-3,	Paragraph 4.2.2.2	This sentence might be clearer if “to displayed imagery” is moved to after “functions related”.	Clarity	Consider moving “to displayed imagery” to after “functions related”, as follows: “Images that depict a portion of the runway environment should be sufficiently sized to support the intended functions related to displayed imagery in paragraph 3.4, as described in AC 25-11B, chapter 5, paragraph 5.11.5.1.”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 4-3,	Paragraph 4.2.3.1	The first sentence in this paragraph might be clearer if “in addition to the SVGS scene depiction” is moved to the beginning of the sentence. Also, it might make sense to switch the order of these two sentences so that the sentence that contains”… the following features and characteristics are required in the SVGS display” can be used as a lead-in to the list that follows.	Clarity	Consider moving “ in addition to the SVGS scene depiction” to the beginning of the sentence, as follows: “In addition to the SVGS scene depiction, the following features and characteristics are required in the SVGS display.” Also, if it makes sense, consider switching the order of these two sentences, and replacing the period at the end of the second sentence with a colon, as follows: “The features should be presented such that they are clearly visible to the pilot operating the aircraft seated in the normal position on the flight deck. In addition to the SVGS scene depiction, the following features and characteristics are required in the SVGS display:”	Editorial	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	Page 4-3,	Paragraphs 4.2.3.2, 4.2.3.3, 4.2.3.4, 4.2.3.5, 4.2.3.6, 4.2.3.7, 4.2.3.8, 4.2.3.9, 4.2.3.10, 4.2.3.11,4.2.3.12, 4.2.3.13, 4.2.3.14, 4.2.3.14.1, 4.2.3.14.2, and UNIVERSAL*	It seems like these paragraphs should be indented because they make up a list. Also, the structure of these list items is inconsistent, which could be confusing for the reader. For example, Some list a feature, such as the following: “4.2.3.5 Lateral and vertical path deviation displays; 4.2.3.6 Command guidance display (see paragraph 4.2.4 below); 4.2.3.7 An earth referenced FPV;” while some list how something should be done, such as the following: “4.2.3.2 The terrain in the area surrounding the runway should not be depicted floating above or below the runway…	Clarity/Consistency of formatting *Please review all lists throughout the document and make appropriate changes to ensure clarity and consistency of formatting.	Consider breaking the list up into two lists, each containing the two types of list items that make up the current list (e.g. display features and how things should be done). For example— “In addition to the SVGS scene depiction, the following features and characteristics are required in the SVGS display: 4.2.3.3 4.2.3.4 4.2.3.5 4.2.3.6 4.2.3.7 In addition to the features and characteristics mentioned above, the following are the minimum requirements for a SVGS flight instrument display: 4.2.3.2 4.2.3.8 4.2.3.9 4.2.3.10 4.2.3.11 4.2.3.12 4.2.3.13 4.2.3.14 4.2.3.14.1 4.2.3.14.2”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-4 ,	Paragraph 4.2.3.14 and UNIVERSAL	This sentence employs the word “shall.”	Consistency of formatting/Accuracy of information	Replace the word “shall” with “must” here and throughout the document. Rule: ORDER 1320.460, FAA Advisory Circular System, Section 7. Essential Writing Principles, subsection f. “Use ‘must’ to convey regulatory requirements. Do not use ‘shall.’ Shall is an ambiguous word. It can mean must, should, ought, or will. ‘Must’ clearly conveys a requirement.”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 4-5,	Paragraph 4.2.7.1.1	Is “msec” being used as an abbreviation for milliseconds?	Consistency of formatting	If “msec” is a commonly used abbreviation for milliseconds, go ahead and use it throughout the documents. However, you may consider using “ms” instead. The GPO Style Manual abbreviates millisecond as “ms”.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-6 ,	Paragraph 4.2.7.2	The abbreviation “mrad” is used but not defined.	Clarity/Consistency of formatting	If “mrad” is being used as an abbreviation for “milliradian,” consider spelling it out instead of using the abbreviation (or spelling it out and putting the abbreviation after it) because it is only used once in the document. For example— “milliradian (mrad)”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-7,	Paragraph 4.2.7.5.2	The last sentence in this paragraph could be made clearer if “may be acceptable” was moved to the send of the sentence.	Clarity	For clarity, consider moving “may be acceptable” after “4.2” at the end of the sentence, as follows: “Other implementations that meet the performance criteria contained in this section and the performance demonstration requirements in paragraph 4.2 may be acceptable.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.2.4	“Appendix” should not be capitalized.	Consistency of formatting	Change “Appendix” to lower case.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.2.5	The period is missing at the end of the sentence.	Grammar	Insert a period after “AC 25.1322-1” at the end of the sentence.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.3.1	In the second sentence, the word “defines” should be “defined”.	Clarity	Please change the “s” at the end of “defines” to a “d”, as follows: “Monitor annunciations should be in the primary field of view as defined in AC 25-11B, paragraph 5.11 and AC 25.1322-1.”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 4-8,	Paragraph 4.3.3.3	This sentence would be clearer if a comma was added after both “approach” and “malfunction”.	Clarity/Grammar	Consider adding a comma after “approach” and after “malfunction”, as follows: “During the final approach, if the SVGS operation cannot be completed due to system malfunction, an alert for loss of SVGGS should be provided.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.4.1	The second sentence would be clearer if an “a” was inserted after “must be”.	Clarity/Ease of reading	Consider inserting an “a” after “must be”, as follows: “This requires that there must be a clear and unambiguous indication to the flight crew to alert them if the position of the aircraft, with respect to the intended path, becomes hazardous due to either the aircraft being out of position with respect to the defined flight path, error in the navigation guidance being followed, or error in the position of the SVGS scene.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.4.2	It seems like dropping “The” at the beginning of the sentence could help with readability. Also, I am not familiar with how the term “height above touchdown (HAT)” is normally used in FAA publications so this sentence seems a little awkward to me. Consider making some changes to the sentence for clarity.	Clarity/Ease of reading	If it makes sense, consider deleting “the” at the beginning of the sentence. Also, if it makes sense, consider inserting an “a” after “at least from” and moving “300 feet” to after “(HAT) of”, as follows: “The Alerts should be active at least from a height above touchdown (HAT) of 300 feet to the missed approach point, but the glide path alert should not be active beyond the missed approach point or anytime the aircraft exits an approach mode.”	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 4-8, Paragraph 4.3.4.3		As in the previous example, it seems like dropping “The” at the beginning of the sentence could help with readability.	Clarity/Ease of reading	If it makes sense, consider deleting “the” at the beginning of the sentence, as follows: “The Alerts should be displayed in the pilot’s primary field of view per AC 25-1322.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-8,	Paragraph 4.3.4.4	It would be helpful to remind the reader what types of elements are going to be listed in the last (list lead-in) sentence in this paragraph.	Clarity/Ease of reading	Consider changing “these” at the beginning of the sentence to “The”, adding “of the Total System Error” after “elements”, and “as follows” after “are”. See example below: “The elements of the Total System Error are as follows:”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page4-9,	Paragraph 4.3.4.4.1.3.1 and UNIVERSAL	Spelling out “para” as “paragraph” would improve the clarity of this sentence. Also, “ft” should be spelled out as “feet” for consistency.	Clarity/Consistency of formatting	Consider spelling out “para” as “paragraph” and “ft” as “feet” here and wherever it occurs throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-10, .	Paragraph 4.3.4.4.1.2	The comma after “laterally” is unnecessary and could confuse the reader.	Clarity/Grammar	Consider striking the comma after “laterally”, as follows: “For SVGS approach operations, SVGS scene position source error monitor 95% probability thresholds should be 48.2 feet laterally and 42.3 feet vertically and should be annunciated (TTA) within 6 seconds to 300 feet AGL HAT.”	Editorial	Comment Accepted. Text Modified.

	For detailed instructions on how to fill out the columns below, please see the Instructions sheet.							
	AC 20-185	Page 4-11,	Paragraph 4.5.1.2	In the first sentence the comma after “the” is unnecessary and could confuse the reader. In the second sentence, the word “that” after should be seems out of place. The comma after “3.4” is unnecessary and could confuse the reader. Also, “appendix” shouldn’t be capitalized.	Clarity	Delete the comma after “of” in the first sentence. Delete the word “that” after “should be” and the comma after “3.4” in the second sentence. Also, change “appendix” to lowercase. See below: “The SVGS databases for terrain should comply with the guidance of AC 20-167, appendix 7. The minimum terrain database resolution and accuracy should be that required to meet the SVGS intended function as described in paragraph 3.4 and compliant with the resolution and accuracy listed in TSO-C151C, appendix 1, paragraph 6.3.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-11,	Paragraph 4.5.2.2	The phrase “should be such as required” is confusing. Also, “GPS based” should be hyphenated.	Clarity/Grammar	If it makes sense, change the phrase “should be such as required” to “should be required” and add a hyphen to “GPS based”, as follows: “The runway data accuracy and integrity should be required to support both the intended functions in paragraph 3.4 and the required overall system safety level for an ILS or GPS-based SVGS operation to a 150 feet AGL missed approach point.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 4-1,	Paragraph 4.5.2.3	“Sect.” should be spelled out and not capitalized.	Clarity/Ease of reading	Please spell out and make lowercase “Sect.”, as follows: A” runway database with a Data Assurance Level 2 (RTCA/DO-201A section 2.1.6.5.)…”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 4-12,	Paragraph 4.5.3.2	In the second sentence, "above ground level" is unnecessary because "AGL" has been defined and used earlier in the document.	Consistency of formatting	Delete "above the ground" after "AGL" in the second sentence. See below: "The system should neither disregard nor corrupt obstacles available in the database greater than 199 feet AGL."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-1,	Paragraph 5.2	The word "design" is misspelled in the section title.	Accuracy of information	Change "System Safety and Deign Assurance Level." to "System Safety and Design Assurance Level."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-1,	Paragraph 5.2.2.2	"Chapter" should be spelled out in the first sentence"	Clarity/Ease of reading	Spell out chapter in the first sentence, as follows: "… shall be assessed according to 14 CFR §§ 23.1309 and 25.1309, AC 25-11B (chapter 4)…"	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-2,	Paragraph 5.2.2.3	"Does indeed" is informal and unnecessary. The sentence would be easier to read if that phrase was deleted. Also, it might make sense to change "perform" to "executes" so that "perform" isn't used twice in the same sentence. Also, "shall" is used.	Clarity/Grammar	Change "shall" to "must". (See example 43 of this document review log for use of "shall".) Consider deleting "does indeed" after "FHA and" and changing "perform" to "executes", as follows: "The SSA of the integrated SVGS shall must then be performed to demonstrate that the installed SVGS meets all the requirements of the FHA and safely executes its intended function."	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 5-2,	Paragraph 5.2.2.3 and UNIVERSAL	With the exception of the final list item, which ends in a period, semicolons are commonly used at the end of list items in FAA publications.	Consistency of formatting	Consider changing the periods at the end of each list item (except the final one) to semicolons and adding a period to the final list item, as follows: "• Lateral, vertical, and longitudinal displacement of the runway image; • Frozen runway depiction; • Missing runway depiction; • Inverted runway depiction; • Misleading terrain depiction; • Misleading obstacles depiction." To maintain consistency of formatting please review all lists in the document to ensure that they follow this format.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-2, Paragraph 5.2.3.1		In the second sentence, "SVGS based" and "ground based" should be hyphenated.	Clarity/Grammar	Add hyphens to "SVGS based" and "ground based", as below: "A fundamental requirement is that an SVGS-based operation should be as safe, or safer, than an equivalent non-SVGS operation conducted using existing ground-based technology."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-2,	Paragraph 5.2.3.2 and UNIVERSAL	"Above" is not necessary after "4.3" in the first sentence.	Consistency of formatting	Consider striking "above" after "4.3" in the first sentence and wherever this occurs throughout the document.	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 5-2,	Paragraph 5.2.3.4	"Airplane Flight Manual" should be deleted because "AFM" was established earlier in the document. Also, the parentheses around "AFM" should be deleted.	Consistency of formatting	Strike "Airplane Flight Manual" and the parentheses around "AFM" after "incorporation in the" as below: "All mitigating flight crew actions that are considered in the SVGS SSA should be validated during testing for incorporation in the Airplane Flight Manual (AFM) limitation section or the procedures section."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-3,	Paragraph 5.2.4.2	This sentence would be easier to understand if the commas were deleted.	Clarity	Consider deleting the three commas in this sentence, as below: "Any single failure within the SVGS, or within any associated system or equipment upon which the operation is dependent, and would reduce the ability of the flight crew to cope with adverse operating conditions, must be shown to be at least Remote/Improbable."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-3,	Paragraph 5.2.4.5	This sentence would be easier to understand if it was recast to remove the passive voice at the beginning of the sentence.	Clarity/Ease of reading	Consider recasting the sentence, as below: "The probability of incorrect guidance information must be shown to be remote when credit is taken for the alerts described in paragraph 4.3.4."	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 5-3,	Paragraph 5.2.5.1 and UNIVERSAL	The title of RTCA/DO-178C is in quotation marks. (See example 6 in this document review log.)	Consistency of formatting	The title of RTCA/DO-178C should be in italics and separated from the title by a comma. See below: “RTCA/DO-178C, Software Considerations in Airborne Systems and Equipment Certification” Please correct any similar instances throughout the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-3,	Paragraph 5.2.5.2	The word “that” seems out of place in this sentence.	Clarity	Consider striking “that” after “should be”, as below: “The DO-178 version should be that current at time of application for certification.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-3,	Paragraph 5.2.5.4	The meaning of this sentence is unclear. It looks like there was a cutting and pasting mistake.	Clarity	I’m not exactly sure how to edit this. Please review and make appropriate changes. “However, in no case should the DAL of any SVGS function be required to assure the safety of the operation be less than DAL B.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-4,	Paragraph 5.2.5.6	The word “that” seems out of place in this sentence.	Clarity	Consider striking “that” after “should be”, as below: “The DO-254 version should be that current at the time of application for certification.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 5-4,	Paragraph 5.2.6.2	The word “that” seems out of place in this sentence.	Clarity	Consider striking “that” after “should be”, as below: “The DO-160 version should be that current at the time of application for certification.”	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 5-4,	Paragraphs 5.2.7 and UNIVERSAL	In line 5.2.7, “Built In” should be hyphenated and the abbreviation BIT should be added in parentheses after “Built-In Test”.	Clarity/Consistency of formatting	Consider hyphenating Built In and adding the abbreviation “(BIT)” after “Built-In Test”. See below: “Built-In Test (BIT).” Replace any instances of “built-in test” that occur after this in one in the document with “BIT”.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-1,	Paragraph 6.1.6 and UNIVERSAL	“Can” is used where “may” would be correct.	Clarity	Change “can” to “may” after “simulator” (see below) and where appropriate throughout the document. “The use of a simulator may be considered, provided the simulator ....” RULE: “Can” signifies ability or capacity. “May” requests or grants permission. In negative expressions, “can” is acceptable for “may.” Example: When you can [not may] get here on time, you may [not can] be excused early. However, if you are not on time, you cannot [or may not] expect privileges.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-1,	Paragraph 6.1.7	This sentence is confusing because “23.1523” is listed twice at the end of the sentence.	Accuracy of information	Is “§ 23.1523 and AC 23.1523, *Minimum Flight Crew*” correct. Please verify and make any appropriate corrections.	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 6-2,	Paragraph 6.2.1.2	In the first sentence, the phrase "should be shown that it meets" is confusing in this sentence. Replacing this phrase with "meet" would both simplify this sentence and make it clearer.	Clarity	Consider deleting "be shown that it" after "should" and change "meets" to "meet", as below: "The SVGS, when used in combination with other aircraft systems, should be shown that it meets the following general requirements."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-2,	Paragraph 6.2.1.2, seventh list item	The end of the sentence in the seventh list item is confusing. The meaning of the phrase "either the HDD" is unclear.	Clarity	If it makes sense, consider striking "the" after "either", as follows: "The SVGS depiction does not degrade the presentation of essential flight information on either the HDD."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-3,	Paragraph 6.2.1.3.1	This list contains more than one type of item.	Clarity/Consistency of formatting	See example 42 of this document review log.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-3,	Paragraph 6.2.1.3.2	The comma after "visibility" is unnecessary and could confuse the reader.	Clarity/Grammar	Strike comma after "visibility", as follows: "Demonstrated performance of the installed SVGS at the authorized visibility, will determine any additional AFM limitations (for example, crosswind and offset)."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-3,	Paragraph 6.2.2.1	There should be a comma after "flight". Also, the semicolon at the end of the sentence should be replaced with an em dash.	Grammar/Ease of reading	Insert a comma after "flight". Also, as mentioned in item 18, if a sentence leads-into a list and is not a complete thought it should end with an em dash, as follows: "If the SVGS is to be available for all phases of flight, it must be evaluated during—"	Editorial	Comment Accepted. Text Modified.

				For detailed instructions on how to fill out the columns below, please see the Instructions sheet.				
	AC 20-185	Page 6-4,	Paragraph 6.2.2.2	The phrase “For all the above” is not specific and could be confusing.	Clarity	Please consider changing “For all the above” to something more specific, such as “Regarding the situations mentioned in the previous list…”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-4,	Paragraph 6.2.2.5	The third list item starts with “A representative”; all of the others start with “Representative”.	Consistency of formatting	Please consider changing “A representative” to “Representative” in the third bullet item.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-4,	Paragraph 6.2.3.2	The second sentence in this paragraph is a little awkward. It could be made clearer with some adjustments.	Clarity/Ease of reading	Consider deleting “of a” after “SVGS is”, moving “kind and design” to after “confirm that the”, and adding “of the” after “kind and design”. See example below. “It may include approaches into specific airports as required by the certifying authorities to demonstrate the applicant’s intended operation and to fully confirm that the kind and design of the SVGS is appropriate to its intended function and that it functions properly when installed.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-5,	Paragraph 6.2.3.4 and 6.2.3.5	Is the phrase “agreed with” correct in the first sentence?	Clarity/Accuracy of information	If this is a commonly used FAA term, then leave as is. If not, please consider changing to a more appropriate term, such as “verified”, “approved by”, etc.	Editorial	Comment Accepted. Text Modified.

	For detailed instructions on how to fill out the columns below, please see the Instructions sheet.							
	AC 20-185	Page 6-5,	Paragraph 6.2.3.4 (Note and lines 1, 2, 3, and 4)	This list could be made a bit easier to understand with some adjustments such as adding “the following occur” to the lead-in sentence, deleting “has occurred” from the first list item, and re-casting the remaining list items so all list items are structured the same.	Clarity/Consistency of formatting	If it makes sense and doesn’t change the meaning of the information being conveyed, consider making the following changes to the list and its lead-in sentence: “A faulted approach occurs when the following occur: 1. A failure within the SVGS has occurred. 2. The indicated airspeed, heading, or attitude at the SVGS missed approach point are not satisfactory for a normal flare and landing, due to a confusing, inadequate, or misaligned SVGS. 3. The aircraft is not positioned so that the cockpit is tracking toward the touchdown zone within the lateral confines of the runway at the SVGS missed approach point. 4. The touchdown is will be too short or too long due to confusing or misaligned runway image and/or flight symbology.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-5,	Paragraph 6.2.4	In the first sentence, there is a comma missing after “utilizing the SVGS”.	Grammar	Consider inserting a comma after “utilizing the SVGS”, as follows: “While displaying and utilizing the SVGS, conduct a series of go-around maneuvers at the SVGS DA/H.”	Editorial	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
	AC 20-185	Page 6-6,	Paragraph 6.2.9	The clarity of this sentence would be improved by moving “must be conducted” to the end of the sentence.	Clarity	Consider moving “must be conducted” to the end of the sentence (and inserting a comma after “error”, as follows: “Tests that verify the correctness of the installed excessive deviation, navigation system error, and scene position monitoring and alerting functions required in paragraph 4.3.4 must be conducted.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-6,	Paragraph 6.2.10	The period is missing at the end of the last sentence in this paragraph.	Grammar	Insert a period at the end of the sentence, as follows: “The ability of the flight crew to cope with failures, as assumed in the FHA, and SSA, must be assessed and confirmed.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-6,	Paragraph 6.2.11 (table row C	Are “jitter” and “flicker” always singular? If they are, consider restructuring this sentence. If they are not, consider making them plural to create parallel structure.	Ease of reading	Consider making “jitter” and “flicker” plural, as below “Verify there are no abrupt changes, jitters, or flickers in the SVGS.” OR consider the following: “Verify there are no abrupt changes in the SVGS and that it does not jitter or flicker.”	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page 6-7,	Paragraph 6.2.11 (table row E)	“PIO” should be spelled out because it has not been previously defined.	Clarity	Spell out “PIO”.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-2,	Paragraph B.1.7 and UNIVERSAL	In the last sentence in this paragraph, “mean sea level” should be “MSL” because the acronym was defined previously in the document.	Consistency of formatting	“Decision altitude is expressed in feet above MSL.” Please correct any other instances that occur after MSL has been defined in the document	Editorial	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	Page B-2,	Paragraph B.1.8 and UNIVERSAL	In the last sentence in this paragraph, "above ground level" should be "AGL" because the acronym was defined previously in the document.	Consistency of formatting	"Decision height is expressed in feet AGL." Please correct any other instances that occur after AGL has been defined in the document.	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-2,	Paragraph B.1.11	The apostrophe at the end of "operation" was added in error.	Clarity	Delete the apostrophe at the end of operation after "(LTS CAT I)", as below: "Lower than Standard Category I (LTS CAT I) operation means a Category I instrument approach…"	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-3,	Paragraph B.1.21	There should be a space between "conditions" and "(14 CFR §1.1)."	Consistency of formatting	Insert a space between "conditions" and "(14 CFR §1.1)."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-4,	Paragraph B.1.30	"Satellite Based" should be hyphenated.	Consistency of formatting/Grammar	Insert a hyphen between "Satellite" and "Based" as below: "Satellite-Based Augmentation System (SBAS)."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-5,	Paragraph B.1.32	"Chapter" should be lowercase. The comma after "AGL HAT" is unnecessary. The period is missing from the end of the sentence.	Consistency of formatting/Grammar	Change "Chapter" to lowercase. Consider removing the comma after "AGL HAT". Add a period at the end of the sentence. See below. "An ILS approach operation conducted in accordance with the requirement of FAA Order 8400.13D, chapter 3, to a Decision Height (DH) as low as 150 feet AGL HAT and visibility as low as 1400 feet runway visual range (RVR)."	Editorial	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

	AC 20-185	Page B-6,	Paragraph B.2.1	The instructions for obtaining publications in the third sentence need to be updated. There appears to be an updated link to the bookstore (https://bookstore.gpo.gov/). Also, there does not appear to be an "Aviation" link to select.	Accuracy of information	Please update instructions for obtaining copies of 14 CFR. Suggested instructions shown below: "You can order copies online at https://bookstore.gpo.gov/. Search for "Code of Federal Regulations."	Editorial	Comment Accepted. Text Modified.
	AC 20-185	Page B-6,	Paragraph B.2.2	This link needs to be updated: http://www.faa.gov/regulations_policies/adviory_circulars/	Accuracy of information	Please update this link: http://www.faa.gov/regulations_policies/adviory_circulars/	Editorial	Comment Accepted. Text Modified.

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#	Document Name	Page Number	Paragraph Number	Referenced Text	Comment/Rationale or Question	Proposed Resolution	Comment Type (Conceptual, Editorial, or Format)	Disposition/Response to Comment
AC 20-SVGS	Airworthiness Approval of Synthetic Vision Guidance System	1-1	1.1	Purpose	My understanding is this AC relates to aircraft installed PFDs used in a SVGS for HDD only. This AC does not exclude portable devices that are currently on the market.	Add exclusionary statement.	C	Comment Accepted. Text Modified.
		1-1	1.1.3		Cites AC 25-1329-1B	Revise to show current AC 25-1329-1C	E	Comment Accepted. Text Modified.
		1-1	1.2	AC Audience	States SVGSSVGS	Remove one SVGS	E	Comment Accepted. Text Modified.
		1-1	1.2	AC Audience	Cites regulations related to pilot's visibility. Irrelavant to AC Audience.	Remove regulatory references	E	Comment Accepted. Text Modified.
		1-1	1.3.2		States SVGSSVGS	Remove one SVGS	E	Comment Accepted. Text Modified.
		1-2	1.4.5		States appendix BB, should state appendix B	Revise	E	Comment Accepted. Text Modified.
		2-1		Chapter 2	This chapter has little value in it's current state.	Move Introduction to Synthetic Vision Guidance Systems (SVGS) from chapter 3 to chapter 2 for ease of understanding. Establish a later chapter for Airworthiness package.	F	Comment Accepted. Text Modified.
		2-1	2.1.4		**NOTE:** Is confusing	Revise to clafify intent	E	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

		2-1	2.2.2.2		This is an extremely long sentence.	May need revision for clarity of intent.	E	Comment Accepted. Text Modified.
		3-4	3.3.2	SVGS Approach Guidance	States " the SVGS is *expected* to be used with the ILS approach guidance system. Is use of ILS guidance optional?	Give additional sources if optional or remove optional language.	C	Comment Accepted. Text Modified.
		4-2	4.2.1.7		States " Any aircraft incorporating an egocentric SVGS depiction *should* also provide terrain avoidance warning system (TAWS)." This conflicts with the mandatory requirement for TAWS in AC 20-167, paragraph 4-3 c. 2..	Consider adding mandatory language and mandatory use of the 500 ft. smart callout in TAWS.	E	Comment Accepted. Text Modified.
		4-2	4.2.1.16		States, " The reverse is also a requirement. D. Dominant topographical features…..	Explain what D. is intended for.	E	Comment Accepted. Text Modified.
		4-3	4.2.3.7		References appendix A.7 of AC 25-11B	Change to read AC 25-11B, Appendix A, paragraph A.7	E	Comment Accepted. Text Modified.
		4-6	4.2.7.2	Jitter	States, " When viewed from the HUD eye reference point the displayed SVGS image jitter amplitude should be less that 0.6 mrad." Is this relevant to a HDD system which is the only system addressed by this AC?	Consider HUD relevance in a HDD only document.	C	Comment Accepted. Text Modified.

For detailed instructions on how to fill out the columns below, please see the Instructions sheet.

		5-4	5.2.8	SVGS Preventive Maintenance	Current paragraph gives minimal guidance on developing maintenance program tasks.	Recommend replacing with the following text or similar; **Continued Airworthiness and Maintenance.** *The applicant must develop instructions for continued airworthiness for the SVGS and its components to show compliance with 14 CFR Parts 23.1529, 25.1529, 27.1529 and 29.1529 dependent on original certification of the host aircraft. Other maintenance tasks may be developed as a result of the safety assessment, design reviews, manufacturer's recommendations, and Maintenance Steering Group 3 (MSG-3) analyses that are conducted. These instructions include, but are not limited to removal and replacement, troubleshooting, cleaning, maintenance procedures for MEL relief and software loading/configuration control.*	C	Comment Accepted. Text Modified.
		6-1	6.1.7		Cites 23.1523 and AC 23.1523. This isolates 14 CFR Part 25, 27 and 29 aircraft.	Revise to remove 14 CFR Part 23 reference or add parts 25, 27 and 29.		Comment Accepted. Text Modified.
		6-2	6.2		This section is absent of helicopter specific flight profiles for 14 CFR Parts 27 and 29.	Ensure FAA entities with helicopter operation experience review this section.	C	Comment Noted
		6-6	6.2.11	Evaluation Matrix	Cites HUD in introduction paragraph and in several evaluation steps. It is the impression of the commentor this AC is for HDD in PFD configurations only.	Remove HUD reference if this AC is solely intended for HDD in a PFD configuration.	C	Comment Accepted. Text Modified.
		A-1	Appendix A	Sample Airplane Flight Manual (AFM) supplement	Mentions rotorcraft flight manual in a template for AFM supplement.	Remove RFMS reference	E	Comment Accepted. Text Modified.

					For detailed instructions on how to fill out the columns below, please see the Instructions sheet.			
				Entire Documet	In several areas AC 25-11B and 25-1329-1B are cited where it may be applicable to part 23, 27 and 29 rules. 25-11b and 25-1329-1B have an applicability statement covering part 25 transport category aircraft.	Exctract desired language from these AC s for applicability for parts 23, 27 and 29.	E	Comment Accepted. Text Modified.
				Entire Document	AC 120-28D and 120-29A are referenced several times. Both documents are under revision at this time.	Reference AC 120-28 and 120-29 "as amended".	E	Comment Accepted. Text Modified.
				General	Document is missing an interface for establishing MEL procedures for SVGS.	Create	C	Comment Noted
				General	Document is missing a table or paragraph for related references	Create	C	Comment Accepted. Text Modified.